PaducahOREIS Download 8/16/02

QC

ERI00-SWMU91-B

Baseline Sampling for SWMU 91-LASAGNA

120399REFLAYC

Collected: 12/3/99

Matrix: WATER

Media Type: WQ

Sample Type: RB

Analysis

Qualifiers* Results

U

U

Units Error (+/-)

Counting Total Propagated Uncertainty

Detect Limit Method

1

VOA

Trichloroethene

ug/L

Uncertainty

SW846-8021 M

121099REFLAYC

Collected: 12/10/99

Matrix: WATER

Results

Media Type: WQ

Counting

Error (+/-)

Sample Type: RB

Collected: 12/10/9

Qualifiers*

Units

Total Propagated Uncertainty Detect Limit Method

Analysis VOA

Trichloroethene

ug/L

Media Type Codes		Media Type Codes (Continued)
AA Ambient Air	TW	Treated Water
AG Soil Gas		Wall corings
AQ Air Quality Control Matrix		Well Development Water
BA Biota, Whole Animal	WE	Estuary
DC Drill Cuttings	WG	Groundwater
EA Effluent Air		Equipment Wash Water, i.e., Water used for Washing
EF Biota, Excreta (feces)		Water that has leached through waste
FR Filter Residue		Ocean Water
FT Filter		Drinking Water
GR Grout		Water Quality Control Matrix
GS Green Salt		Surface Water
LD Drilling Fluid		Water From Vadose Zone
LE Liquid Emulsion		Waste Water
LF Floating/Free Product on Groundwater Table		Special Water Quality Control Matrix
LO Oil, All Types (Transformer, Waste, Motor, Mineral)	YC	Yellow Cake
LT Liquid from tank		
LV Liquid From Vadose Zone		SmpMethod Codes
MS Metal Shavings	?	Other, defined in COMMENTS column
NA Not Available	CSF	Continuous Sample Flow
NW Non-Water Liquid	ES	Estimate
PC Precipitation	FPC	Flow Proportional Composite
PW Porewater	GR	Grab
QA Aquatic Animal	NA	Not Applicable
QB Aquatic Bird	SC	Spatial Composite
QC Aquatic (Some combination of at least 2) of bird, plant,	SPLT	Split
animal; Excludes benthic organism	TC	Temporal Composite
QN Benthic Organism		
QP Aquatic Plant		SampleType Codes
SC Cement	?	Other, defined in COMMENTS column
SE Sediment (associated with surface water)	DI	Deionized Water used for preparing blanks, etc.
SF Filter Sandpack	DIL	Laboratory dilution
SL Sludge	FB	Field Blank
SN Supernatant	FR	Field Replicate (Code used for Field Duplicate)
SO Soil	PRBL	
SP Floor Sweepings	RB	Refrigerator blank
SQ Soil/Solid Quality Control Matrix	REG	Regular
SS Scrapings	REG2	Regular sample, secondary analysis
SW Swab or Wipe	REP	Replicate
SZ Solid Waste	REP1	Replicate 1
TA Animal Tissue	REP2	Replicate 2
TB Terrestrial Bird	REP3	
TC Terrestrial (Some combination at least 2) of bird, plant, or	REP4	
animal.)	RI	QC Equipment Rinsate/Decon
TP Plant Tissue	ТВ	Trip Blank
TQ Tissue Quality Control Matrix	TLC	Toxicity Laboratory Control Sample
1 -1	D	-1
Footnote	ory Result C	oues

- Insufficient uranium present in the sample to determine an assay.
- В Maximum assay was used to calculate the MDA for total uranium activities.
- С Normal assay was used to calculate the MDA for total uranium activites.
- Sample was analyzed by a non-destructive test per customer request.
- Gross activities are a calculated value. Gamma activity is converted to the corresponding gross alpha/beta measurement. Insufficient sample available/provided for gross beta analysis.
- TIMS assay used to calculate total uranium activity.
- No nuclide meet criteria for gross gamma.
- The MDA of all principal nuclide not identified and nuclide identified were summed to provide max. reportable activity.
- No analysis result available. Sample signal too weak.
- Κ No analysis result available. Total U below reporting limit.
- No minor isotope determination available. Signal strength insufficient.
- Result is biased high and MDA is biased low due to interfering lines and/or increases in BKG due to sample activity.
- Measured U-235 act/mass was below MDA therefore all other cal. U isotopes & U-total wil be rpt as below their resp. MDAs
- Gross Gamma has no output error.
- The max. plant assay was assumed since the calculated assay was not within the range of plant cascade assays.
- Q Mass of U-235 is < or = MDM, thus mass of total U/U isotopes won't be reported. Total U/U isotopes will be < their MDMs.
- Cs-134 activity will be understated due to the short half-life and will exclude any previous site induced Cs-134.
- Gross gamma is a Cs-137 equivalence. Activity assumes branch yield and det eff of Cs-137 for all lines in spectrum.
- Analyte is a common volatile laboratory contaminant.
- Analyte is present at the LCR. W
- Std Dev is calculated based on controls (SRM) prepared and analyzed with each sample batch. SRM is ~0.711 wt% U-235.

Laboratory Result Codes (continued)

Inorganic

- * Duplicate analysis not within control limits.
- Method of standard additions (MSA) correlation coefficient less than 0.995.
- < Analyte analyzed for but not detected at or below the lowest concentration reported.</p>
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Indicates that a TIC is suspected aldol-condensation product
- B Applies when the analyte is found in the associated blank
- D All compounds identified in the analysis at the secondary dilution factor
- E Result estimated due to interferences.
- J Indicates an estimated value
- M Duplicate injection precision not met.
- N Sample spike recovery not within control limits.
- Q No analytical result available or not required because total analyses < PQL
- R QC indicates that data are not usable. Resampling and re-analysis are necessary for verification
- S Result determined by method of standard additions (MSA).
- U Analyte analyzed for but not detected at or below the lowest concentration reported.
- W Post-digestion spike recovery out of control limits.
- X Other specific flags and footnotes may be required to properly define the results

Organic

- < Analyte analyzed for but not detected at or below the lowest concentration reported.
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Tentatively identified compound (TIC) is suspected aldol-condensation product.
- B Compound found in blank as well as sample.
- C Compound presence confirmed by GC/MS. (GC/MS flag)
- D Compounds identified in an analysis at a secondary dilution factor.
- E Result exceeds calibration range. (GC/MS flag)
- J Indicates an estimated value
- N Presumptive evidence of a compound. (GC/MS flag)
- P Difference between results from two GC columns unacceptable.
- U Compound analyzed for but not detected at or below the lowest concentration reported.
- X Other specific flags and footnotes may be required to properly define the results
- Y MS MSD recovery and/or RPD failed acceptance criteria
- Z (Reserved by CLP for a laboratory-defined organic data qualifier.)

Rads

- < Analyte analyzed for but not detected at or below the lowest concentration reported.
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Analyzed but not detected at the analyte quantitation limit.
- B Method blank not statistically different from sample at 95% level of confidence.
- D Sample is statistically different from duplicate at 95% level of confidence.
- J Indicates an estimated value.
- Expected and measured value for LCS is statistically different at 95% level of confidence.
- M Expected and measured value for MS is statistically different at 95% level of confidence.
- R QC indicates that data are not usable. Resampling and reanalysis are necessary for verification.
- T Tracer recovery is < or equal to 30% or > or equal to 105%.
- U Value reported is < the MDA and/or < 2 sigma TPE.
- X Other specific flags and footnotes may be required to properly define the results.

	Verification Codes		Validation Codes (continued)
?	Other, defined in COMMENTS column	N	The analysis indicates the presence of an analyte for
В	Result exceeds background criteria		which there is presumptive evidence to make a
	Result exceeds established criteria		"tentative identification."
S	Result exceeds statistical controls based on historical	R	Result rejected by validator.
	data	U	The analyte was analyzed for, but was not detected
T	Holding time exceeded for this analysis		above the reported sample quantitation limit.
Х	Result exceeds permit limits	UJ	Analyte, compound or nuclide not detected above the reported detection limit, and the reported detection
	Validation Codes		limit is approximated due to quality deficiency.
	Validated result, which is detected and unqualified Other, defined in COMMENTS column	X	Not validated; Refer to the RSLTQUAL field for more information
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the	XV	Not validated; Refer to the RSLTQUAL field for more information
	analyte in the sample.	XX	Unknown; Refer to the RSLTQUAL field for more information
		XZ	Data evaluation performed; Validation qualifiers not applied; Refer to RSLTQUAL field for more information

Assessment Qualifier Codes

? Other, defined in COMMENTS column

BH-ER Result may be biased high; chemical detected in associated equipment rinseate

BH-FB Result may be biased high; chemical detected in associated field blank

BH-FB,& Result may be biased high; chemical detected in associate field blank. See comments for additional assessment

qualifiers

BH-LAB Result may be biased high; compound is a known or probable lab contaminant

BH-LABPR Result biased high due to laboratory process

BH-PURGE Result may be biased high; sample may be diluted with driling fluid due to insufficient purging prior to sampling

BH-RB Result may be biased high; chemical detected in associated refrigerator blank
BH-RI Result may be biased high; chemical detected in associated equipment rinsate.

BH-SOLID Result biased high due to sample containing a large amount of solids

BH-SS Result may be biased high; sample may contain particles of the acetate sampling sleeve

BH-TEMP Result biased high due to a temperature exceedance.

BL-LAB Result may be biased low; compound is a known or probable lab contaminant

BL-LABPR Result biased low due to laboratory process

BL-PURGE Result may be biased low; sample may be diluted with drilling fluid due to insufficient purging prior to sampling Result may be biased low; sample may be diluted with drilling fluid due to insufficient purging prior to sampling. See

comments for additional assessment qualifiers

BL-T Result may be biased low; sample holding time exceeded

BL-T,J Result may be biased low; sample holding time exceeded, estimated

BL-TEMP Result biased low due to a temperature exceedance

DIS-EDDF1 Discrepancies exist between the EDD and the Form 1. Form 1s are generated by instrument software that automatically

reports all detected compounds. It is the lab's policy to not report quantities below LCRs within their EDD format. Both

sets of data are correct. However, the EDD format data, which feeds OREIS, will be used for reporting.

IN-LAB Result should be considered information only. Compound is a known or probable lab contaminant

IN-LAB,& Result should be considered information only. Compound is a known or probable lab contaminant. See comments for

additional assessment qualifiers

IN-METH Result should be considered information only. Lab utilized a modified method.

J Result estimated

KYRHTAB-50 Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the rad error accounts for greater than 50% of the results.

KYRHTAB-ER Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the data presents error problems (ie., no counting uncertainty or

zero counting uncertainty).

KYRHTAB-LT Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the results are less than (LT) the maximum detectable activity

(MDA) or detection limit and should not be plotted.

KYRHTAB-NE Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the rad error exhibits a negative value, which is a statistical outlier.

KYRHTAB-OK Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the data is acceptable for use.

N/A Not Applicable

NOVAL Validation requested but qualifier not provided due to missing Form I Validation targeted for this project but not required for field laboratory data.

NR Assessment question not resolved.

R Result unusable.

R-C Result questionable, credibility at issue.

R-C,& Result questionable, credibility at issue. See comments for additional assessment qualifiers

R-H Result unusable due to historical trending (i.e., outlier).
R-HSS Rejected due to high suspended solids content.

R-MTRX Result rejected due to matrix interference.

R-NORAD Result unusable; Uranium-235 portion of calculation is below reliable detection limits.

R-NORAD,& Result unusable; Uranium-235 portion of calculation is below reliable detection limits. See comments for additional

assessment qualifiers

R-NTRSFW Result rejected; not a true representative sample of formation water

R-PRES Result rejected due to improper preservative added.
R-RERUN Result unusable, results from re-analysis should be used

R-T Result rejected due to missed holding time

U Not detected

U,J Not detected and result estimated

U-RAD Result considered a non-detect; instrument measurement error is equal to or greater than the reported result U-RAD,& Result considered a non-detect; instrument measurement error is equal to or greater than the reported result, see

comments for additional assessment qualifiers

APPENDIX C

PROGRESS SAMPLING EVENT A RESULTS AUGUST 2000

BOR06

ERI00-SWMU91-1

Lasagna Progress Sampling - First Event

020616710C

Trichloroethene

Collected: 10/9/00	Matrix: SOIL		Media	Type: SO		Sample Type:	REG
Analysis	Qualifiers* Re	sults	Units	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method
VOA						40	SW846-8260
1,1-Dichloroethene	JU	10	ug/kg			10	•
cis-1,2-Dichloroethene	J	35	ug/kg			10	SW846-8260
trans-1,2-Dichloroethene	JU	10	ug/kg			10	SW846-8260
Trichloroethene	EJ	1000	ug/kg			10	SW846-8260
Vinyl chloride	JU	10	ug/kg			10	SW846-8260
020616743E Collected: 10/9/00	Matrix: SOIL		Media	Type: SO		Sample Type:	REG
Analysis VOA Trichloroethene		esults 1822	<u>Units</u>	Counting Error (+/-)	Total Propagated Uncertainty		Method SW846-8021 M
020626743E							
	Matrix: SOI		Media	Type: SO		Sample Type:	REG
Collected: 10/9/00 Analysis VOA		<u>esults</u>	<u>Units</u>	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method
10/1						20	SW846-8021 M

ug/kg

232

BOR07

ERI00-SWMU91-1

Lasagna Progress Sampling - First Event

020706743E

)20706743E						
Collected: 10/10/00	Matrix: SOIL	Media	Type: SO		Sample Type:	REG
Analysis	Qualifiers* Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	Method
VOA richloroethene	552000	ug/kg			5000	SW846-8021 M
)20711743E						
Collected: 10/10/00	Matrix: SOIL	Media	Type: SO		Sample Type:	REG
Analysis VOA	Qualifiers* Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	Method
Trichloroethene	131000	ug/kg			5000	SW846-8021 M
020716743E						
Collected: 10/10/00	Matrix: SOIL	Media	Type: SO		Sample Type:	REG
Analysis	Qualifiers* Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	Method
VOA Trichloroethene	44000	ug/kg			2500	SW846-8021 M
 020721743E						
Collected: 10/10/00	Matrix: SOIL	Media	Type: SO		Sample Type:	REG
Analysis	Qualifiers* Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	Method
VOA Trichloroethene	16000	ug/kg			1000	SW846-8021 M
 020726743E						
Collected: 10/10/00	Matrix: SOIL	Media	Type: SO		Sample Type:	REG
Analysis	Qualifiers* Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method
VOA Trichloroethene	1600	ug/kg			20	SW846-8021 M
020731710C						
Collected: 10/10/00	Matrix: SOIL	Media	a Type: SO		Sample Type	: REG
Analysis	Qualifiers* Results	<u>Units</u>	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method
VOA 1,1-Dichloroethene	JU 10	ug/kg			10	SW846-8260
cis-1,2-Dichloroethene	JU 10				10	SW846-8260
trans-1,2-Dichloroethene	JU 10) ug/kg			10	SW846-8260
Trichloroethene	JU 10) ug/kg			10	SW846-8260
Vinyl chloride	JU 10) ug/kg			10	SW846-8260

BOR07

VOA

Trichloroethene

ERI00-SWMU91-1

Lasagna Progress Sampling - First Event

020731743E

Collected: 10/10/00	Matrix: SOIL	Media 7	Type: SO		Sample Type:	REG
Analysis	Qualifiers* Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Limit</u>	Method
VOA Trichloroethene	1100	ug/kg			20	SWB46-8021 M
020736743E						
Collected: 10/10/00	Matrix: SOIL	Media 1	Type: SO		Sample Type:	REG
Analysis	Qualifiers* Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method
VOA Trichloroethene	959	ug/kg			20	SW846-8021 M
020741 7 43E						
Collected: 10/10/00	Matrix: SOIL	Media	Type: SO		Sample Type:	REG
Analysis	Qualifiers* Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method
VOA Trichloroethene	543	ug/kg			20	SW846-8021 M
020736743D						
Collected: 10/10/00	Matrix: SOIL	Media	Type: SO		Sample Type:	FR
Analysis	Qualifiers* Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method

820

ug/kg

SW846-8021 M

20

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BOR08

ERI00-SWMU91-1

Lasagna Progress Sampling - First Event

020821710C

Collected:	10/9/00
Comocioa.	

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis	Qualifiers*	Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	Method
VOA			_			40	CW04C 00C0
1,1-Dichloroethene	JU	10	ug/kg			10	SW846-8260
cis-1,2-Dichloroethene	JU	10	ug/kg			10	SW846-8260
trans-1,2-Dichloroethene	JU	10	ug/kg			10	SW846-8260
Trichloroethene	J	48	ug/kg			10	SW846-8260
Vinyl chloride	JU	10	ug/kg			10	SW846-8260
020821743E							
Collected: 10/9/00	Matrix: SO	IL	Media	Type: SO		Sample Type:	REG

Analysis Qualifiers* Results Units Error (+/-) Total Propagated Uncertainty Uncertainty Method

VOA

Trichloroethene

Total Propagated Uncertainty Uncertainty Method

20 SW846-8021 M

BOR09

ERI00-SWMU91-1

Lasagna Progress Sampling - First Event

020921743E

Collected: 10/10/00

Matrix: SOIL

Qualifiers*

Media Type: SO

Sample Type: REG

Analysis

VOA Trichloroethene

Units Results

ug/kg

28000

Counting Error (+/-)

Total Propagated Uncertainty

Detect Limit

Method

500 SW846-8021 M

020926710C

Collected: 10/10/00

Matrix: SOIL

Media Type: SO

Sample Type: REG

Detect Counting Total Propagated Uncertainty Limit Error (+/-) Method Units Results Qualifiers* **Analysis** VOA SW846-8260 JU 10 ug/kg 10 1,1-Dichloroethene SW846-8260 10 10 ug/kg cis-1,2-Dichloroethene JU SW846-8260 10 10 ug/kg trans-1,2-Dichloroethene JU SW846-8260 10 ug/kg 10 Trichloroethene JUX SW846-8260 10 10 ug/kg Vinyl chloride JU

020926743E

Collected: 10/10/00

Matrix: SOIL

Results

Results

110

Qualifiers*

Media Type: SO

Sample Type: REG

Analysis VOA

Trichloroethene

Counting

Total Propagated Uncertainty Error (+/-)

Detect Limit

Method

SW846-8021 M

020931743E

Collected: 10/10/00

Matrix: SOIL

Media Type: SO

Sample Type: REG

10

<u>Analysis</u>

Qualifiers*

Counting

Total Propagated

Detect

VOA

Units

ug/kg

Units

ug/kg

Error (+/-)

Uncertainty

Limit Method

SW846-8021 M

Trichloroethene 020936743E

Trichloroethene

Collected: 10/10/00

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis

Qualifiers*

Units Results

Counting Error (+/-)

Total Propagated Uncertainty

Detect Limit

Method

VOA

10 ug/kg

BOR10

ERI00-SWMU91-1

Lasagna Progress Sampling - First Event

021036710C

Trichloroethene

Collected: 10/11/00	Matrix: SOIL	Media Type: SO	Sample Type	: REG
Analysis	Qualifiers* Results	Counting Units Error (+/-)	Total Propagated Detect Uncertainty Limit	Method
VOA 1,1-Dichloroethene	JU 10	ug/kg	10	SW846-8260
cis-1,2-Dichloroethene	JU 10	ug/kg	10	SW846-8260
trans-1,2-Dichloroethene	JU 10	ug/kg	10	SW846-8260
Trichloroethene	JU 10	ug/kg	10	SW846-8260
Vinyl chloride	JU 10	ug/kg	10	SW846-8260
021036743E				
Collected: 10/11/00	Matrix: SOIL	Media Type: SO	Sample Type	: REG
Analysis VOA	Qualifiers* Results	Counting Units Error (+/-)	Total Propagated Detect Uncertainty Limit	Method
Trichloroethene	9	ug/kg		SW846-8021 M
021041743E				
Collected: 10/11/00	Matrix: SOIL	Media Type: SO	Sample Type	e: REG
Analysis VOA	Qualifiers* Results	Units Counting Error (+/-)	Total Propagated Detect Uncertainty Limit	Method
Trichloroethene	9	ug/kg	_	SW846-8021 M
021046743E				
Collected: 10/11/00	Matrix: SOIL	Media Type: SO	Sample Type	e: REG
Analysis VOA	Qualifiers* Results	Units Counting Error (+/-		<u>Met</u> hod

20

ug/kg

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Lasagna Progress Sampling - First Event

020001710T

Collected: 10/9/00	Matrix: WA	ATER	Media	Type: WQ	\$	Sample Type:	ТВ
Analysis	Qualifiers*	Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method
VOA						40	CINDAE DOCO
1,1-Dichloroethene	JU	10	ug/L			10	SW846-8260
cis-1,2-Dichloroethene	IJĻ	10	ug/L			10	SW846-8260
rans-1,2-Dichloroethene	JU	10	ug/L			10	SW846-8260
Trichloroethene	JU	10	ug/L			10	SW846-8260
Vinyl chloride	ĴΠ	10	ug/L			10	SW846-8260
020006743T							
Collected: 10/9/00	Matrix: W/	ATER	Media	Type: WQ		Sample Type:	TB
Analysis	Qualifiers*	Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Limit</u>	Method
VOA	U	1	ug/L			1	SW846-8021 M
Trichloroethene	U		uge				
020001743T							
Collected: 10/10/00	Matrix: W	ATER	Media	a Type: WQ		Sample Type:	тв
Analysis	Qualifiers*	Results	Units	Counting Error (*/-)	Total Propagated Uncertainty	Detect Limit	Method
VOA						1	SW846-8021 M
Trichloroethene		1	ug/L				34040-002 I IM
020003710T							
Collected: 10/10/00	Matrix: W	ATER	Medi	a Type: WQ		Sample Type:	TB
Analysis	Qualifiers'	Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	Method
VOA		40				10	SW846-8260
1,1-Dichloroethene	JU	10	ug/L			10	SW846-8260
cis-1,2-Dichloroethene	JU	10	ug/L			10	SW846-8260
trans-1,2-Dichloroethene	JU	10	ug/L			10	SW846-8260
Trichloroethene	JU	10	ug/L			10	SW846-8260
Vinyl chloride	JU	10	ug/L				011010 0200
020007743T							
Collected: 10/10/00	Matrix: V	VATER	Med	ia Type: WQ		Sample Type	: ТВ
				Counting			Mathed
Analysis	Qualifiers'	Results	Units	Error (+/-)	Uncertainty	Limit	Method
VOA						90	
Trichloroethene	U	1	ug/L			1	SW846-8021 M

\mathbf{QC}

ERI00-SWMU91-1

Lasagna Progress Sampling - First Event

020005710T

Collected: 10/11/00	Matrix: WA	TER	Media T	ype: WQ		Sample Type:	тв
Analysis	Qualifiers*	Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method
VOA 1.1-Dichloroethene	JU	10	ug/L			10	SW846-8260
cis-1,2-Dichloroethene	JU	10	ug/L			10	SW846-8260
trans-1,2-Dichloroethene	JU	10	ug/L			10	SW846-8260
Trichloroethene	JU	10	ug/L			10	SW846-8260
Vinyl chloride	10	10	ug/L			10	SW846-8260
020005743T							
Collected: 10/11/00	Matrix: W/	ATER	Media 7	Гуре: WQ		Sample Type:	ТВ
Analysis	Qualifiers*	Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	Method
VOA Trichloroethene	υ		ug/L			1	SW846-8021 M
020001743R	-		ug/L				
Collected: 10/9/00	Matrix: W	ATER	Media 1	Type: WQ		Sample Type:	: RI
Analysis VOA	Qualifiers*	Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method
Trichloroethene	U	1	ug/L			1	SW846-8021 M

	Media Type Codes		Media Type Codes (Continued)
AA	Ambient Air	TW	Treated Water
AG	Soil Gas	WC	Wall corings
AQ	Air Quality Control Matrix	WD	Well Development Water
	Biota, Whole Animal	WE	Estuary
	Drill Cuttings	WG	
EΑ	Effluent Air	WH	
EF	Biota, Excreta (feces)	WL	Water that has leached through waste
FR	Filter Residue	WO	Ocean Water
FT	Filter	WP	Drinking Water
GR	Grout	WQ	Water Quality Control Matrix
GS	Green Salt	WS	Surface Water
LD	Drilling Fluid	WV	Water From Vadose Zone
LE	Liquid Emulsion	WW	Waste Water
	Floating/Free Product on Groundwater Table	WZ	Special Water Quality Control Matrix
LO	Oil, All Types (Transformer, Waste, Motor, Mineral)	YC	Yellow Cake
	Liquid from tank		
LV	Liquid From Vadose Zone		SmpMethod Codes
MS	Metal Shavings	?	Other, defined in COMMENTS column
	Not Available	CSF	Continuous Sample Flow
	Non-Water Liquid	ES	Estimate
	Precipitation	FPC	Flow Proportional Composite
	Porewater	GR	Grab
	Aquatic Animal	NA	Not Applicable
	Aquatic Bird	SC	Spatial Composite
QC	Aquatic (Some combination of at least 2) of bird, plant,	SPLT	· ·
	animal; Excludes benthic organism	TC	Temporal Composite
	Benthic Organism		
	Aquatic Plant	_	SampleType Codes
	Cement	?	Other, defined in COMMENTS column
	Sediment (associated with surface water)	DI	Deionized Water used for preparing blanks, etc.
	Filter Sandpack	DIL	Laboratory dilution
	Sludge	FB	Field Blank
	Supernatant	FR	Field Replicate (Code used for Field Duplicate)
	Soil	PRBL	
	Floor Sweepings	RB	Refrigerator blank
	Soil/Solid Quality Control Matrix	REG	Regular
	Scrapings	REG	
	Swab or Wipe	REP	• •
	Solid Waste	REP1	
	Animal Tissue	REP2	
	Terrestrial Bird	REPS	•
10	Terrestrial (Some combination at least 2) of bird, plant, or	REP4	4°
TD	animal.)	RI	QC Equipment Rinsate/Decon
10	Plant Tissue	TB	Trip Blank

Laboratory Result Codes

TLC

Toxicity Laboratory Control Sample

Footnote

- A Insufficient uranium present in the sample to determine an assay.
- B Maximum assay was used to calculate the MDA for total uranium activities.
- C Normal assay was used to calculate the MDA for total uranium activites.
- D Sample was analyzed by a non-destructive test per customer request.
- E Gross activities are a calculated value. Gamma activity is converted to the corresponding gross alpha/beta measurement.
- F Insufficient sample available/provided for gross beta analysis.
- G TIMS assay used to calculate total uranium activity.
- H No nuclide meet criteria for gross gamma.

TQ Tissue Quality Control Matrix

- The MDA of all principal nuclide not identified and nuclide identified were summed to provide max, reportable activity.
- J No analysis result available. Sample signal too weak.
- K No analysis result available. Total U below reporting limit.
- L No minor isotope determination available. Signal strength insufficient.
- M Result is biased high and MDA is biased low due to interfering lines and/or increases in BKG due to sample activity.
- N Measured U-235 act/mass was below MDA therefore all other cal. U isotopes & U-total will be rpt as below their resp. MDAs
- O Gross Gamma has no output error.
- P The max. plant assay was assumed since the calculated assay was not within the range of plant cascade assays.
- Q Mass of U-235 is < or = MDM, thus mass of total U/U isotopes won't be reported. Total U/U isotopes will be < their MDMs.
- R Cs-134 activity will be understated due to the short half-life and will exclude any previous site induced Cs-134.
- S Gross gamma is a Cs-137 equivalence. Activity assumes branch yield and det eff of Cs-137 for all lines in spectrum.
- T Analyte is a common volatile laboratory contaminant.
- W Analyte is present at the LCR.
- Z Std Dev is calculated based on controls (SRM) prepared and analyzed with each sample batch. SRM is -0.711 wt% U-235.

Laboratory Result Codes (continued)

Inorganic

- Duplicate analysis not within control limits.
- Method of standard additions (MSA) correlation coefficient less than 0.995.
- < Analyte analyzed for but not detected at or below the lowest concentration reported.
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Indicates that a TIC is suspected aldol-condensation product
- B Applies when the analyte is found in the associated blank
- D All compounds identified in the analysis at the secondary dilution factor
- E Result estimated due to interferences.
- J Indicates an estimated value
- M Duplicate injection precision not met.
- N Sample spike recovery not within control limits.
- Q No analytical result available or not required because total analyses < PQL
- R QC indicates that data are not usable. Resampling and re-analysis are necessary for verification
- S Result determined by method of standard additions (MSA).
- U Analyte analyzed for but not detected at or below the lowest concentration reported.
- W Post-digestion spike recovery out of control limits.
- X Other specific flags and footnotes may be required to properly define the results

Organic

- < Analyte analyzed for but not detected at or below the lowest concentration reported.</p>
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Tentatively identified compound (TIC) is suspected aldol-condensation product.
- B Compound found in blank as well as sample.
- C Compound presence confirmed by GC/MS. (GC/MS flag)
- D Compounds identified in an analysis at a secondary dilution factor.
- E Result exceeds calibration range. (GC/MS flag)
- J Indicates an estimated value
- N Presumptive evidence of a compound. (GC/MS flag)
- P Difference between results from two GC columns unacceptable.
- U Compound analyzed for but not detected at or below the lowest concentration reported.
- X Other specific flags and footnotes may be required to properly define the results
- Y MS,MSD recovery and/or RPD failed acceptance criteria
- Z (Reserved by CLP for a laboratory-defined organic data qualifier.)

Rads

- < Analyte analyzed for but not detected at or below the lowest concentration reported.
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Analyzed but not detected at the analyte quantitation limit.
- B Method blank not statistically different from sample at 95% level of confidence.
- D Sample is statistically different from duplicate at 95% level of confidence.
- J Indicates an estimated value.
- L Expected and measured value for LCS is statistically different at 95% level of confidence.
- M Expected and measured value for MS is statistically different at 95% level of confidence.
- R QC indicates that data are not usable. Resampling and reanalysis are necessary for verification.
- T Tracer recovery is < or equal to 30% or > or equal to 105%.
- U Value reported is < the MDA and/or < 2 sigma TPE.
- X Other specific flags and footnotes may be required to properly define the results.

	Verification Codes		Validation Codes (continued)
?	Other, defined in COMMENTS column	N	The analysis indicates the presence of an analyte for
В	Result exceeds background criteria		which there is presumptive evidence to make a
ŀ	Result exceeds established criteria		"tentative identification."
S	Result exceeds statistical controls based on historical	R	Result rejected by validator.
	data	U	The analyte was analyzed for, but was not detected
T	Holding time exceeded for this analysis		above the reported sample quantitation limit.
Х	Result exceeds permit limits	υJ	Analyte, compound or nuclide not detected above the reported detection limit, and the reported detection
	Validation Codes		limit is approximated due to quality deficiency.
= ?	Validated result, which is detected and unqualified Other, defined in COMMENTS column	X	Not validated; Refer to the RSLTQUAL field for more information
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the	XV	Not validated; Refer to the RSLTQUAL field for more information
	analyte in the sample.	XX	Unknown; Refer to the RSLTQUAL field for more information
		XZ	Data evaluation performed; Validation qualifiers not applied; Refer to RSLTQUAL field for more information

Assessment Qualifier Codes

? Other, defined in COMMENTS column

BH-ER Result may be biased high; chemical detected in associated equipment rinseate

BH-FB Result may be biased high; chemical detected in associated field blank

BH-FB,& Result may be biased high; chemical detected in associate field blank. See comments for additional assessment

qualifiers

BH-LAB Result may be biased high; compound is a known or probable lab contaminant

BH-LABPR Result biased high due to laboratory process

BH-PURGE Result may be biased high; sample may be diluted with drilling fluid due to insufficient purging prior to sampling

BH-RB Result may be biased high; chemical detected in associated refrigerator blank Result may be biased high; chemical detected in associated equipment rinsate.

BH-SOLID Result biased high due to sample containing a large amount of solids

BH-SS Result may be biased high; sample may contain particles of the acetate sampling sleeve

BH-TEMP Result biased high due to a temperature exceedance.

BL-LAB Result may be biased low; compound is a known or probable lab contaminant

BL-LABPR Result biased low due to laboratory process

BL-PURGE

Result may be biased low; sample may be diluted with drilling fluid due to insufficient purging prior to sampling

BL-PURGE,&

Result may be biased low; sample may be diluted with drilling fluid due to insufficient purging prior to sampling. See

comments for additional assessment qualifiers

BL-T Result may be biased low; sample holding time exceeded

BL-T,J Result may be biased low; sample holding time exceeded, estimated

BL-TEMP Result biased low due to a temperature exceedance

DIS-EDDF1 Discrepancies exist between the EDD and the Form 1. Form 1s are generated by instrument software that automatically

reports all detected compounds. It is the lab's policy to not report quantities below LCRs within their EDD format. Both

sets of data are correct. However, the EDD format data, which feeds OREIS, will be used for reporting.

IN-LAB Result should be considered information only. Compound is a known or probable lab contaminant

IN-LAB,& Result should be considered information only. Compound is a known or probable lab contaminant. See comments for

additional assessment qualifiers

IN-METH Result should be considered information only. Lab utilized a modified method.

J

Result estimated

KYRHTAB-50 Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the rad error accounts for greater than 50% of the results.

KYRHTAB-ER Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the data presents error problems (ie., no counting uncertainty or

zero counting uncertainty).

KYRHTAB-LT Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the results are less than (LT) the maximum detectable activity

(MDA) or detection limit and should not be plotted.

KYRHTAB-NE Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the rad error exhibits a negative value, which is a statistical outlier.

KYRHTAB-OK Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the data is acceptable for use.

N/A Not Applicable

NOVAL Validation requested but qualifier not provided due to missing Form I Validation targeted for this project but not required for field laboratory data.

NR Assessment question not resolved.

R Result unusable.

R-C Result questionable, credibility at issue.

R-C,& Result questionable, credibility at issue. See comments for additional assessment qualifiers

R-H Result unusable due to historical trending (i.e., outlier).

R-HSS Rejected due to high suspended solids content.
R-MTRX Result rejected due to matrix interference.

R-NORAD Result unusable; Uranium-235 portion of calculation is below reliable detection limits.

R-NORAD,& Result unusable; Uranium-235 portion of calculation is below reliable detection limits. See comments for additional

assessment qualifiers

R-NTRSFW Result rejected; not a true representative sample of formation water

R-PRES
Result rejected due to improper preservative added.
R-RERUN
Result unusable, results from re-analysis should be used

R-T Result rejected due to missed holding time

U Not detected

U,J Not detected and result estimated

U-RAD
Result considered a non-detect; instrument measurement error is equal to or greater than the reported result
U-RAD,& Result considered a non-detect; instrument measurement error is equal to or greater than the reported result, see

comments for additional assessment qualifiers

APPENDIX D

PROGRESS SAMPLING EVENT B RESULTS AUGUST 2001

BOR06

ERI01-SWMU91-2 Lasagna Progress Sampling - Second Event ERI01-SW

BOR06LAS06

Media Type: SO Collected: 8/28/01 Matrix: SOIL Sample Type: REG

Counting **Total Propagated** Detect Qualifiers* Error (+/-) Uncertainty Limit Units Method **Analysis**

VOA

SW846-8021 M Trichloroethene 21500 250 ug/kg

BOR06LAS11

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Total Propagated Counting Detect **Analysis** Qualifiers* Results Units Error (+/-) Uncertainty Limit Method

VOA

Trichloroethene SW846-8021 M 7900 ug/kg 250

BOR06LAS16

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Counting **Total Propagated** Detect Qualifiers* Error (+/-) Uncertainty Limit Method **Analysis** Results Units

VOA

Trichloroethene 197 SW846-8021 M ug/kg 10

BOR06LAS21

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Total Propagated Counting Detect Uncertainty Error (+/-) Limit Qualifiers* Results Units Analysis Method

VOA

Trichloroethene 594 ug/kg SW846-8021 M

BOR06LAS26

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Counting Total Propagated Detect

Error (+/-) Uncertainty **Analysis** Qualifiers* Results Units Limit Method VOA

Trichloroethene 25 ug/kg 10 SW846-8021 M

BOR07

ERI01-SWMU91-2 Lasagna Progress Sampling - Second Event ERI01-SW

BOR07LAS06

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Counting Total Propagated Detect Analysis Qualifiers* Results Units Error (+/-) Uncertainty Limit Method

VOA

Trichloroethene 6700 ug/kg SW846-8021 M 100

BOR07LAS11

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Total Propagated Detect Counting Method

Analysis Qualifiers* Results Units Error (+/-) Uncertainty Limit

VOA

Trichloroethene 27000 SW846-8021 M ug/kg

BOR07LAS16

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Total Propagated Counting Detect Analysis Qualifiers* Results Units Error (+/-) Uncertainty Limit Method

VOA Trichloroethene 2900 ug/kg 100 SW846-8021 M

BOR07LAS21

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Counting Total Propagated Detect

Error (+/-) Uncertainty Limit Qualifiers* Results Units **Analysis** Method VOA

Trichloroethene 92 SW846-8021 M ug/kg 10

BOR07LAS26

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Counting **Total Propagated** Detect Error (+/-) Uncertainty Limit Analysis Qualifiers* Results Units Method

VOA Trichloroethene 12200 ug/kg 250 SW846-8021 M

BOR07LAS31

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Counting Total Propagated Detect Qualifiers* Error (+/-) Uncertainty Limit Analysis Results Units

VOA

Trichloroethene 1900 ug/kg 10 SW846-8021 M

BOR07LAS36

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Total Propagated Counting Detect **Analysis** Qualifiers* Results Units Error (+/-) Uncertainty Limit Method VOA

Trichloroethene 35 SW846-8021 M ug/kg 10

Method

SW846-8021 M

10

BOR07

ERI01-SWMU91-2 Lasagna Progress Sampling - Second Event ERI01-SW

BOR07LAS41

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

Analysis Qualifiers Results Units Error (+/-) Uncertainty Detect Limit Method

VOA

ug/kg

BOR07LAS46

Trichloroethene

Collected: 8/28/01 Matrix: SOIL Media Type: SO Sample Type: REG

44

Analysis VOA	Qualifiers*	Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	Detect <u>Limit</u>	Method
1,1-Dichloroethene	U	10	ug/kg			10	SW846-8260
cis-1,2-Dichloroethene	U	10	ug/kg			10	SW846-8260
trans-1,2-Dichloroethene	U	10	ug/kg			10	SW846-8260
Trichloroethene	U	1	ug/kg			1	SW846-8021 M
Trichloroethene	U	10	ug/kg			10	SW846-8260
Vinyl chloride	U	10	ug/kg			10	SW846-8260

SW846-8021 M

BOR08

ERI01-SWMU91-2 Lasagna Progress Sampling - Second Event ERI01-SW

BOR08LAS06

Collected: 8/27/01

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis

Qualifiers*

Units

780

Counting Error (+/-)

Total Propagated Uncertainty

Detect

Limit Results Method VOA

ug/kg

Trichloroethene BOR08LAS11

Collected: 8/27/01

Matrix: SOIL

Media Type: SO

Sample Type: REG

250

Counting Total Propagated Detect Uncertainty Qualifiers* Results Error (+/-) Limit Method **Analysis** Units VOA 1,1-Dichloroethene U SW846-8260 10 ug/kg 10 cis-1,2-Dichloroethene U 10 10 SW846-8260 ug/kg trans-1,2-Dichloroethene U 10 ug/kg 10 SW846-8260 Trichloroethene U SW846-8021 M 1 ug/kg 1 Trichloroethene U 10 ug/kg 10 SW846-8260 Vinyl chloride U 10 SW846-8260 10 ug/kg

BOR08LAS16

Collected: 8/27/01

Matrix: SOIL

Matrix: SOIL

Media Type: SO

Sample Type: REG

Counting Total Propagated Detect **Analysis** Qualifiers* Results Units Error (+/-) Uncertainty Limit Method VOA U SW846-8021 M 1 ug/kg

Trichloroethene BOR08LAS21

Collected: 8/27/01

Media Type: SO

Sample Type: REG

Counting **Total Propagated** Detect Uncertainty Limit Qualifiers* Results Error (+/-) **Analysis** Units Method VOA Trichloroethene U ug/kg SW846-8021 M Lasagna Progress Sampling - Second Event ERI01-SW

BOR09

ERI01-SWMU91-2

	Empagna 110g10	35 Samping	5 Second Event	LICIOI DIV	
BOR09LAS06					
Collected: 8/27/01	Matrix: SOIL	Media	Type: SO	Sample Type	: REG
Analysis VOA	Qualifiers* Results	<u>Units</u>	Counting Total Pro	ppagated Detect rtainty Limit	Method
Trichloroethene	U	1 ug/kg			SW846-8021 M
BOR09LAS11					
Collected: 8/27/01	Matrix: SOIL	Media	Type: SO	Sample Type	: REG
Analysis VOA	Qualifiers* Results	Units	Counting Total Pro	pagated <u>Detect</u> rtainty <u>Limit</u>	Method
Trichloroethene	U	ug/kg		1	SW846-8021 M
BOR09LAS16					
Collected: 8/27/01	Matrix: SOIL	Media	Type: SO	Sample Type	: REG
Analysis VOA	Qualifiers* Results	Units	Counting Total Pro Error (+/-) Uncer	pagated Detect rtainty Limit	Method
Trichloroethene	U	ug/kg		1	SW846-8021 M
BOR09LAS21					
Collected: 8/27/01	Matrix: SOIL	Media	Type: SO	Sample Type	REG
Analysis VOA	Qualifiers* Results	Units	Counting Total Pro Error (+/-) Uncer	pagated Detect tainty Limit	Method
1,1-Dichloroethene	U 1	l0 ug/kg		10	SW846-8260
cis-1,2-Dichloroethene	U 1	l0 ug/kg		10	SW846-8260
trans-1,2-Dichloroethene	U 1	0 ug/kg		10	SW846-8260
Trichloroethene		0 ug/kg		10	SW846-8260
Trichloroethene	U	1 ug/kg		1	SW846-8021 M
Vinyl chloride	U 1	0 ug/kg		10	SW846-8260
BOR09LAS26					
Collected: 8/27/01	Matrix: SOIL	Media ⁻	Type: SO	Sample Type:	REG
Analysis VOA	Qualifiers* Results	<u>Units</u>	Counting Total Pro Error (+/-) Uncer		Method
Trichloroethene	U	1 ug/kg			SW846-8021 M

Lasagna Progress Sampling - Second Event ERI01-SW

BOR₁₀

Analysis

VOA Trichloroethene

ERI01-SWMU91-2

BOR10LAS06			
Collected: 8/27/01	Matrix: SOIL	Media Type: SO	Sample Type: REG
Analysis	Qualifiers* Results	Counting Units Error (+/-	
VOA 1,1-Dichloroethene	U 10	O ug/kg	10 SW846-8260
cis-1,2-Dichloroethene	U 10	0 0	10 SW846-8260 10 SW846-8260
trans-1,2-Dichloroethene	U 10	- 5 5	10 SW846-8260
Trichloroethene	U 1	- 5 5	1 SW846-8021 M
Trichloroethene	U 10	- -	10 SW846-8260
Vinyl chloride	U 10	0 0	10 SW846-8260
BOR10LAS11			
Collected: 8/27/01	Matrix: SOIL	Media Type: SO	Sample Type: REG
Analysis VOA	Qualifiers* Results	Units Counting Units Error (+/-	
Trichloroethene	U	ug/kg	1 SW846-8021 M
BOR10LAS16			
Collected: 8/27/01	Matrix: SOIL	Media Type: SO	Sample Type: REG
Analysis VOA	Qualifiers* Results	Units Counting	
Trichloroethene	U	ug/kg	1 SW846-8021 M
BOR10LAS21			
Collected: 8/27/01	Matrix: SOIL	Media Type: SO	Sample Type: REG
	202202	Counting	Total Propagated Detect

Units

ug/kg

Error (+/-)

Uncertainty

Limit

1

Method

SW846-8021 M

Qualifiers*

U

Results

QC

ERI01-SWMU91-2	Lasagna Progress Sampling - Second Event	ERI01-SW

TB1LAS8-01

TB1LAS8-01			
Collected: 8/27/01	Matrix: WATER	Media Type: WQ	Sample Type: TB
Analysis VOA	Qualifiers* Results	Units Counting Error (+/-)	
Trichloroethene	U	ug/L	1 SW846-8021 M
TB2LAS8-01			
Collected: 8/27/01	Matrix: WATER	Media Type: WQ	Sample Type: TB
Analysis VOA	Qualifiers* Results	Units Counting Error (+/-)	
Trichloroethene	U	ug/L	1 SW846-8021 M
RI1LAS8-01			
Collected: 8/27/01	Matrix: WATER	Media Type: WQ	Sample Type: RI
Analysis VOA	Qualifiers* Results	Units Counting Error (+/-)	Total Propagated Detect Uncertainty Limit Method
Trichloroethene	U 1	ug/L	SW846-8021 M
RI2LAS8-01			
Collected: 8/28/01	Matrix: WATER	Media Type: WQ	Sample Type: RI
		Counting	
Analysis VOA	Qualifiers* Results	Units Error (+/-)	Uncertainty Limit Method
Trichloroethene	U 1	ug/L	SW846-8021 M
RB1LAS8-01			
Collected: 8/27/01	Matrix: WATER	Media Type: WQ	Sample Type: RB
Analysis VOA	Qualifiers* Results	Units Counting Error (+/-)	Total Propagated Uncertainty Detect Limit Method
Trichloroethene	U	ug/L	1 SW846-8021 M
FB1LAS8-01			
Collected: 8/27/01	Matrix: WATER	Media Type: WQ	Sample Type: FB
Analysis VOA	Qualifiers* Results	Units Error (+/-)	
1,1-Dichloroethene	U 10	ug/L	10 SW846-8260
cis-1,2-Dichloroethene	U 10	ug/L	10 SW846-8260
rans-1,2-Dichloroethene	U 10	ug/L	10 SW846-8260
Trichloroethene	U 10	ug/L	10 SW846-8260
Trichloroethene	U 1	ug/L	1 SW846-8021 M

U

10

ug/L

Vinyl chloride

10 SW846-8260

PaducahOREIS Download 8/16/02

QC

ERI01-SWMU91-2 Lasagna Progress Sampling - Second Event ERI01-SW

FB2LAS8-01

Collected: 8/28/01

Matrix: WATER

Media Type: WQ

Sample Type: FB

Analysis

Qualifiers* Results

U

Units

Counting Total Propagated Uncertainty

Detect Limit

Method

VOA

Trichloroethene

ug/L

Media Type Codes		Media Type Codes (Continued)
AA Ambient Air	TW	Treated Water
AG Soil Gas	WC	Wall corings
AQ Air Quality Control Matrix	WD	Well Development Water
BA Biota, Whole Animal	WE	Estuary
DC Drill Cuttings	WG	
EA Effluent Air	WH	Equipment Wash Water, i.e., Water used for Washing
EF Biota, Excreta (feces)	WL	Water that has leached through waste
FR Filter Residue		Ocean Water
FT Filter	WP	Drinking Water
GR Grout	WQ	
GS Green Salt	WS	Water Quality Control Matrix
		Surface Water
LD Drilling Fluid	WV	Water From Vadose Zone
LE Liquid Emulsion		Waste Water
LF Floating/Free Product on Groundwater Table	WZ	Special Water Quality Control Matrix
LO Oil, All Types (Transformer, Waste, Motor, Mineral)	YC	Yellow Cake
LT Liquid from tank		
LV Liquid From Vadose Zone		SmpMethod Codes
MS Metal Shavings	?	Other, defined in COMMENTS column
NA Not Available	CSF	Continuous Sample Flow
NW Non-Water Liquid	ES	Estimate
PC Precipitation	FPC	Flow Proportional Composite
PW Porewater	GR	Grab
QA Aquatic Animal	NA	Not Applicable
QB Aquatic Bird	SC	Spatial Composite
QC Aquatic (Some combination of at least 2) of bird, plant,	SPLT	
animal; Excludes benthic organism	TC	Temporal Composite
QN Benthic Organism	.0	1 cmporar composite
QP Aquatic Plant		SampleType Codes
SC Cement	?	Other, defined in COMMENTS column
SE Sediment (associated with surface water)	DI	
SF Filter Sandpack	DIL	Deionized Water used for preparing blanks, etc.
SL Sludge	FB	Laboratory dilution
		Field Blank
SN Supernatant	FR	Field Replicate (Code used for Field Duplicate)
SO Soil	PRBI	
SP Floor Sweepings	RB	Refrigerator blank
SQ Soil/Solid Quality Control Matrix	REG	
SS Scrapings	REG	Regular sample, secondary analysis
SW Swab or Wipe	REP	P
SZ Solid Waste	REP1	
TA Animal Tissue	REP2	
TB Terrestrial Bird	REPS	
TC Terrestrial (Some combination at least 2) of bird, plant, or	REP4	Replicate 4
animal.)	RI	QC Equipment Rinsate/Decon
TP Plant Tissue	TB	Trip Blank
TQ Tissue Quality Control Matrix	TLC	Toxicity Laboratory Control Sample
	_	

Media Type Codes (Continued)

Laboratory Result Codes

Footnote

A Insufficient uranium present in the sample to determine an assay.

Media Type Codes

- B Maximum assay was used to calculate the MDA for total uranium activities.
- C Normal assay was used to calculate the MDA for total uranium activites.
- D Sample was analyzed by a non-destructive test per customer request.
- E Gross activities are a calculated value. Gamma activity is converted to the corresponding gross alpha/beta measurement.
- F Insufficient sample available/provided for gross beta analysis.
- G TIMS assay used to calculate total uranium activity.
- H No nuclide meet criteria for gross gamma.
- I The MDA of all principal nuclide not identified and nuclide identified were summed to provide max, reportable activity.
- J No analysis result available. Sample signal too weak.
- K No analysis result available. Total U below reporting limit.
- L No minor isotope determination available. Signal strength insufficient.
- M Result is biased high and MDA is biased low due to interfering lines and/or increases in BKG due to sample activity.
- N Measured U-235 act/mass was below MDA therefore all other cal. U isotopes & U-total will be rpt as below their resp. MDAs
- O Gross Gamma has no output error.
- P The max. plant assay was assumed since the calculated assay was not within the range of plant cascade assays.
- Q Mass of U-235 is < or = MDM, thus mass of total U/U isotopes won't be reported. Total U/U isotopes will be < their MDMs.
- R Cs-134 activity will be understated due to the short half-life and will exclude any previous site induced Cs-134.
- S Gross gamma is a Cs-137 equivalence. Activity assumes branch yield and det eff of Cs-137 for all lines in spectrum.
- T Analyte is a common volatile laboratory contaminant.
- W Analyte is present at the LCR.
- Z Std Dev is calculated based on controls (SRM) prepared and analyzed with each sample batch. SRM is ~0.711 wt% U-235.

Laboratory Result Codes (continued)

Inorganic

- Duplicate analysis not within control limits.
- Method of standard additions (MSA) correlation coefficient less than 0.995.
- Analyte analyzed for but not detected at or below the lowest concentration reported.
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Indicates that a TIC is suspected aldol-condensation product
- B Applies when the analyte is found in the associated blank
- D All compounds identified in the analysis at the secondary dilution factor
- E Result estimated due to interferences.
- J Indicates an estimated value
- M Duplicate injection precision not met.
- N Sample spike recovery not within control limits.
- Q No analytical result available or not required because total analyses < PQL
- R QC indicates that data are not usable. Resampling and re-analysis are necessary for verification
- S Result determined by method of standard additions (MSA).
- U Analyte analyzed for but not detected at or below the lowest concentration reported.
- W Post-digestion spike recovery out of control limits.
- X Other specific flags and footnotes may be required to properly define the results

Organic

- < Analyte analyzed for but not detected at or below the lowest concentration reported.</p>
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Tentatively identified compound (TIC) is suspected aldol-condensation product.
- B Compound found in blank as well as sample.
- C Compound presence confirmed by GC/MS. (GC/MS flag)
- D Compounds identified in an analysis at a secondary dilution factor.
- E Result exceeds calibration range. (GC/MS flag)
- J Indicates an estimated value
- N Presumptive evidence of a compound. (GC/MS flag)
- P Difference between results from two GC columns unacceptable.
- U Compound analyzed for but not detected at or below the lowest concentration reported.
- X Other specific flags and footnotes may be required to properly define the results
- Y MS,MSD recovery and/or RPD failed acceptance criteria
- Z (Reserved by CLP for a laboratory-defined organic data qualifier.)

Rads

- < Analyte analyzed for but not detected at or below the lowest concentration reported.</p>
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Analyzed but not detected at the analyte quantitation limit.
- B Method blank not statistically different from sample at 95% level of confidence.
- D Sample is statistically different from duplicate at 95% level of confidence.
- J Indicates an estimated value.
- Expected and measured value for LCS is statistically different at 95% level of confidence.
- M Expected and measured value for MS is statistically different at 95% level of confidence.
- R QC indicates that data are not usable. Resampling and reanalysis are necessary for verification.
- Tracer recovery is < or equal to 30% or > or equal to 105%.
- U Value reported is < the MDA and/or < 2 sigma TPE.
- X Other specific flags and footnotes may be required to properly define the results.

В	Verification Codes Other, defined in COMMENTS column Result exceeds background criteria Result exceeds established criteria	N	Validation Codes (continued) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
S	Result exceeds statistical controls based on historical data	R U	Result rejected by validator.
T	Holding time exceeded for this analysis	U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
Х	Result exceeds permit limits	N1	Analyte, compound or nuclide not detected above the
_	Validation Codes		reported detection limit, and the reported detection limit is approximated due to quality deficiency.
?	Validated result, which is detected and unqualified Other, defined in COMMENTS column	Х	Not validated; Refer to the RSLTQUAL field for more information
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the	XV	Not validated; Refer to the RSLTQUAL field for more information
	analyte in the sample.	XX	Unknown; Refer to the RSLTQUAL field for more information
		XZ	Data evaluation performed; Validation qualifiers not applied; Refer to RSLTQUAL field for more information

Assessment Qualifier Codes

Other, defined in COMMENTS column

BH-ER Result may be biased high; chemical detected in associated equipment rinseate

BH-FB Result may be biased high; chemical detected in associated field blank

BH-FB,& Result may be biased high; chemical detected in associate field blank. See comments for additional assessment

qualifiers

BH-LAB Result may be biased high; compound is a known or probable lab contaminant

BH-LABPR Result biased high due to laboratory process

BH-PURGE Result may be biased high; sample may be diluted with driling fluid due to insufficient purging prior to sampling

BH-RB Result may be biased high; chemical detected in associated refrigerator blank BH-RI Result may be biased high; chemical detected in associated equipment rinsate.

BH-SOLID Result biased high due to sample containing a large amount of solids

BH-SS Result may be biased high; sample may contain particles of the acetate sampling sleeve

BH-TEMP Result biased high due to a temperature exceedance.

BL-LAB Result may be biased low; compound is a known or probable lab contaminant

BL-LABPR Result biased low due to laboratory process

BL-PURGE Result may be biased low; sample may be diluted with drilling fluid due to insufficient purging prior to sampling **BL-PURGE,&** Result may be biased low; sample may be diluted with drilling fluid due to insufficient purging prior to sampling. See

comments for additional assessment qualifiers

BL-T Result may be biased low; sample holding time exceeded

BL-T,J Result may be biased low; sample holding time exceeded, estimated

BL-TEMP Result biased low due to a temperature exceedance

DIS-EDDF1 Discrepancies exist between the EDD and the Form 1. Form 1s are generated by instrument software that automatically

reports all detected compounds. It is the lab's policy to not report quantities below LCRs within their EDD format. Both

sets of data are correct. However, the EDD format data, which feeds OREIS, will be used for reporting.

Result should be considered information only. Compound is a known or probable lab contaminant IN-LAB

IN-LAB,& Result should be considered information only. Compound is a known or probable lab contaminant. See comments for

additional assessment qualifiers

IN-METH Result should be considered information only. Lab utilized a modified method.

Result estimated

KYRHTAB-50 Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the rad error accounts for greater than 50% of the results.

Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to KYRHTAB-ER be confused with data verification and validation) and the data presents error problems (ie., no counting uncertainty or

zero counting uncertainty).

KYRHTAB-LT Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the results are less than (LT) the maximum detectable activity

(MDA) or detection limit and should not be plotted.

KYRHTAB-NE Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the rad error exhibits a negative value, which is a statistical outlier.

KYRHTAB-OK Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the data is acceptable for use.

N/A Not Applicable

NOVAL Validation requested but qualifier not provided due to missing Form I **NOVAL-FLAB** Validation targeted for this project but not required for field laboratory data.

NR Assessment question not resolved.

R Result unusable.

R-C Result questionable, credibility at issue.

R-C.& Result questionable, credibility at issue. See comments for additional assessment qualifiers R-H

Result unusable due to historical trending (i.e., outlier).

R-HSS Rejected due to high suspended solids content. R-MTRX Result rejected due to matrix interference.

R-NORAD Result unusable; Uranium-235 portion of calculation is below reliable detection limits.

R-NORAD,& Result unusable; Uranium-235 portion of calculation is below reliable detection limits. See comments for additional

assessment qualifiers

R-NTRSFW Result rejected; not a true representative sample of formation water

R-PRES Result rejected due to improper preservative added. R-RERUN Result unusable, results from re-analysis should be used

R-T Result rejected due to missed holding time

U Not detected

U,J Not detected and result estimated

U-RAD Result considered a non-detect; instrument measurement error is equal to or greater than the reported result U-RAD,& Result considered a non-detect; instrument measurement error is equal to or greater than the reported result, see

comments for additional assessment qualifiers

APPENDIX E

FINAL VERIFICATION SAMPLING EVENT RESULTS APRIL/MAY 2002

Paducah-OREIS Data Report

BOR01V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR01LAS08

Collected: 4/30/2002	Matrix: SC	OIL.	Media	Type: SO		Sample Type:	REG
Analysis	Qualifiers*	Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	Method
VOA Trichloroethene	U		ug/kg			1	SW846-8021 M
BOR01LAS23							
Collected: 4/30/2002	Matrix: SC	VIL.	Media	Type: SO		Sample Type:	REG
Analysis VOA	Qualifiers*	Results	<u>Units</u>	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	Method
Trichloroethene		2.6	ug/kg				SW846-8021 M
BOR01LAS38							
Collected: 4/30/2002	Matrix: SC)IL	Media	Type: SO		Sample Type:	REG
Analysis VOA	Qualifiers*	Results	<u>Units</u>	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	<u>Method</u>
1,1-Dichloroethene	U	1	ug/kg			1	SW846-8260A
cis-1,2-Dichloroethene	U	1	ug/kg			1	SW846-8260A
trans-1,2-Dichloroethene	U	1	ug/kg			1	SW846-8260A
Trichloroethene	U	1	ug/kg			1	SW846-8260A
Trichloroethene	U	1	ug/kg			1	SW846-8021 M
Vinyl chloride	U	1	ug/kg			1	SW846-8260A

Collected: 4/30/2002

Matrix: SOIL

Media Type: SO

Sample Type: FR

Method

Counting Total Propagated
Error (+/-) Uncertainty <u>Detect</u> Limit Qualifiers* Results **Analysis** <u>Units</u>

VOA

Trichloroethene 1.9 ug/kg SW846-8021 M

BOR02V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR02LAS08

Collected: 4/30/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis

Qualifiers* Results

U

Error (+/-) <u>Units</u>

Counting Total Propagated Uncertainty

<u>Detect</u> Limit Method

VOA

Trichloroethene

ug/kg

41.4

SW846-8021 M

BOR02LAS23

Collected: 4/30/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

<u>Analysis</u>

VOA Trichloroethene Qualifiers* Results

Counting Error (+/-) Units

Detect Total Propagated Uncertainty Limit

Method

SW846-8021 M

BOR02LAS38

Collected: 5/1/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

<u>Analysis</u>

Qualifiers* Results

Units

Counting Total Propagated
Error (+/-) Uncertainty Detect <u>Limit</u>

Method

SW846-8021 M

VOA Trichloroethene

8.3

ug/kg

ug/kg

BOR03V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR03LAS08

Collected: 5/2/2002

Matrix SOIL

Media Type: SO

Sample Type: REG

Analysis

VOA

Qualifiers* Results Units

14

ug/kg

<u>Units</u>

Counting Total Propagated Uncertainty Error (+/-)

Detect Limit

Method

SW846-8021 M

Trichloroethene BOR03LAS23

Collected: 5/2/2002

Matrix: SOIL

Qualifiers* Results

Media Type: SO

Sample Type: REG

Counting Total Propagated Error (+/-)

<u>Detect</u> Uncertainty <u>Limit</u>

Method

Analysis VOA

Trichloroethene

1 ug/kg

SW846-8021 M

BOR03LAS38

Collected: 5/2/2002

Matrix: SOIL

U

Media Type: SO

Sample Type: REG

Qualifiers* Results

Error (+/-) Units

Counting Total Propagated Detect Uncertainty Limit

Method

Analysis VOA

Trichloroethene

7.9 ug/kg

Method

Paducah-OREIS Data Report

BOR04V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

Counting

Total Propagated

Detect

BOR04LAS08

Collected: 5/8/2002 Matrix: SOIL Sample Type: REG Media Type: SO

Error (+/-) Uncertainty Limit Qualifiers* Results Units **Analysis** Method

VOA

U Trichloroethene ug/kg SW846-8021 M

BOR04LAS23

Collected: 5/8/2002 Matrix: SOIL Media Type: SO Sample Type: REG

Counting Total Propagated <u>Detect</u>

Error (+/-) Uncertainty Limit Qualifiers* Results **Analysis** <u>Units</u> Method

VOA

VOA

Trichloroethene U ug/kg SW846-8021 M

BOR04LAS38

Collected: 5/8/2002 Matrix: SOIL Media Type: SO Sample Type: REG

Counting Total Propagated <u>Detect</u>

Error (+/-) Uncertainty <u>Limit</u> <u>Analysis</u> Qualifiers* Results <u>Units</u>

Trichloroethene U SW846-8021 M 1 ug/kg

BOR05V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR05LAS08

Collected: 5/8/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis

Qualifiers* Results

U

U

Units Error (+/-)

Counting Total Propagated Detect Limit

Method

VOA

Trichloroethene

ug/kg

Uncertainty

SW846-8021 M

BOR05LAS23

Collected: 5/8/2002

Matrix: SOIL

Qualifiers* Results

Media Type: SO

Error (+/-)

Sample Type: REG

Total Propagated Counting

Uncertainty

Uncertainty

Detect Limit

Method

<u>Analysis</u> VOA

Trichloroethene

ug/kg

Units

SW846-8021 M

BOR05LAS38

Collected: 5/8/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

<u>Analysis</u> VOA

Qualifiers* Results Units

1

Counting Total Propagated Error (+/-)

Detect Limit

Method

Trichloroethene

U

ug/kg

BOR06V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR06LAS08

Collected: 4/30/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG
<u>Analysis</u>	Qualifiers* Results	Counting Units Error (+/-	<u> </u>
VOA			
1,1-Dichloroethene	U	ug/kg	1 SW846-8260A
cis-1,2-Dichloroethene	U	ug/kg	1 SW846-8260A
trans-1,2-Dichloroethene	U	ug/kg	1 SW846-8260A
Trichloroethene	U	ug/kg	1 SW846-8021 M
Trichloroethene	U	ug/kg	1 SW846-8260A
Vinyl chloride	U	ug/kg	1 SW846-8260A
BOR06LAS23			
Collected: 4/30/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG
Analysis VOA	Qualifiers* Results	Units Counting	
Trichloroethene	U 1	ug/kg	1 SW846-8021 M
BOR06LAS38			
Collected: 4/30/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG
Analysis VOA	Qualifiers* Results	Units Error (+/-	The second secon
Trichloroethene	U 1	ug/kg	SW846-8021 M

*QUALIFIER Codes See attached List. Page 6 of 31

Method

Method

Paducah-OREIS Data Report

BOR07V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR07LAS08

Collected: 5/7/2002 Matrix: SOIL Media Type: SO Sample Type: REG

Analysis Qualifiers Results Units Error (+/-) Uncertainty Limit Method

VOA

Trichloroethene U ug/kg 1 SW846-8021 M

BOR07LAS23

Collected: 5/7/2002 Matrix: SOIL Media Type: SO Sample Type: REG

Counting Total Propagated Detect

Analysis Qualifiers* Results Units Error (+/-) Uncertainty Limit

 VOA

 Trichloroethene
 U
 1 ug/kg
 1 SW846-8021 M

BOR07LAS38

Collected: 5/7/2002 Watrix; SOIL Media Type; SO Sample Type: REG

Counting Total Propagated Detect

Analysis Qualifiers* Results Units Error (+/-) Uncertainty Limit

VOA

Trichloroethene U 1 ug/kg 1 SW846-8021 M

BOR08V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR08LAS08

Collected: 5/7/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis

Qualifiers* Results

Error (+/-) Units

Counting Total Propagated Uncertainty

Detect Method

VOA

Trichloroethene

2.5 ug/kg SW846-8021 M

BOR08LAS23

Collected: 5/7/2002

Media Type: SO

Sample Type: REG

Error (+/-)

Counting Total Propagated Uncertainty

<u>Detect</u> Limit

Limit

<u>Method</u>

Analysis VOA

Trichloroethene

1.3 ug/kg

Units

SW846-8021 M

BOR08LAS38

Collected: 5/7/2002

Matrix: SOIL

Qualifiers' Results

Qualifiers* Results

Media Type: SO

Sample Type: REG

<u>Analysis</u>

Units

Counting Total Propagated Error (+/-)

Detect Uncertainty Limit

<u>Method</u>

VOA

Trichloroethene 2.9

ug/kg

BOR09V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR09LAS08

Collected: 5/7/2002 Matrix: SOIL Media Type: SO

Sample Type: REG

Analysis

Units Qualifiers* Results

Counting Total Propagated Error (+/-) Uncertainty

<u>Detect</u> <u>Limit</u> Method

VOA

Trichloroethene 7.2 ug/kg SW846-8021 M

BOR09LAS23

Collected: 5/7/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Qualifiers* Results

Error (+/-) Units

Counting Total Propagated Detect Uncertainty Limit

Method

<u>Analysis</u> VOA

U Trichloroethene

ug/kg

SW846-8021 M

BOR09LAS38

Collected: 5/7/2002

Matrix: SOIL

Qualifiers* Results

Media Type: SO

Sample Type: REG

Counting Total Propagated Error (+/-) Uncertainty

Detect Limit Method

<u>Analysis</u>

VOA Trichloroethene

ug/kg

11

Units

1 SW846-8021 M

Paducah-OREIS Data Report

BOR10V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR10LAS08

Trichloroethene

*QUALIFIER Codes

See attached List.

Collected: 5/7/2002	Matrix: SOIL	Media Type: SO	San	nple Type: REG
Analysis	Qualifiers* Results	Units Counting Error (+/-)		etect mit Method
VOA Trichloroethene	U	ug/kg		1 SW846-8021 M
BOR10LAS23				
Collected: 5/7/2002	Matrix: SOIL	Media Type: SO	San	nple Type: REG
Analysis VOA	Qualifiers* Results	Units Counting Units Error (+/-		etect imit Method
Trichloroethene	U	ug/kg		1 SW846-8021 M
BOR10LAS38				
Collected: 5/7/2002	Matrix: SOIL	Media Type: SO	San	nple Type: REG
Analysis VOA	Qualifiers* Results	Counting Units Error (+/-)		etect mit <u>Method</u>
Trichloroethene	7.2	ug/kg		1 SW846-8021 M
BOR10DLAS38				
Collected: 5/7/2002	Matrix: SOIL	Media Type: SO	San	nple Type: FR
Analysis VOA	Qualifiers* Results	Counting Units Error (+/-)		etect imit Method

6.7

ug/kg

BOR11V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR11LAS08

Trichloroethene

Collected: 4/30/2002	Matrix: SOIL		Media	Type: SO		Sample Type	: REG
<u>Analysis</u>	Qualifiers*	Results	Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	<u>Method</u>
VOA			,				0141040 00004
1,1-Dichloroethene	U	1	ug/kg			1	SW846-8260A
cis-1,2-Dichloroethene		2	ug/kg			1	SW846-8260A
trans-1,2-Dichloroethene	U	1	ug/kg			1	SW846-8260A
Trichloroethene		276	ug/kg			1	SW846-8021 M
Trichloroethene		87	ug/kg			1	SW846-8260A
Vinyl chloride	U	1	ug/kg			1	SW846-8260A
BOR11LAS23							
Collected: 4/30/2002	Matrix: SOIL	-	Media	Type: SO		Sample Type	: REG
Analysis VOA	Qualifiers*	Results	<u>Units</u>	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	<u>Method</u>
Trichloroethene		13.2	ug/kg			1	SW846-8021 M
BOR11LAS38							
Collected: 4/30/2002	Matrix: SOIL	9	Media	Type: SO		Sample Type	REG

1.9

ug/kg

BOR12V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR12LAS08

Collected: 5/6/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis Qualifiers* Results

Units

Counting Total Propagated Uncertainty Error (+/-)

Detect <u>Limit</u> Method

VOA

Trichloroethene

37.5 ug/kg

ug/kg

Units

SW846-8021 M

BOR12LAS23

Collected: 5/6/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Counting Total Propagated <u>Detect</u>

Analysis VOA

Trichloroethene

Qualifiers* Results

2442

Error (+/-) <u>Units</u>

Uncertainty

Limit Method

SW846-8021 M

BOR12LAS38

Collected: 5/6/2002

Matrix: SOIL

Qualifiers* Results

Media Type: SO

Error (+/-)

Sample Type: REG

Counting Total Propagated Detect. Uncertainty

Limit

Analysis VOA

Trichloroethene

4506 ug/kg SW846-8021 M

Method

SW846-8021 M

Paducah-OREIS Data Report

BOR13V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR13LAS08

VOA Trichloroethene

Matrix: SOIL Sample Type: REG Collected: 5/6/2002 Media Type: SO Counting Total Propagated Detect Error (+/-) Uncertainty Limit Qualifiers* Results Units Analysis Method VOA Trichloroethene U ug/kg SW846-8021 M BOR13LAS23 Collected: 5/6/2002 Matrix: SOIL Media Type: SO Sample Type: REG Counting Total Propagated <u>Detect</u> Error (+/-) Uncertainty Limit Qualifiers* Results <u>Units</u> Method <u>Analysis</u> VOA Trichloroethene SW846-8021 M 2503 ug/kg BOR13LAS38 Collected: 5/6/2002 Matrix: SOIL Media Type: SO Sample Type: REG Counting Total Propagated Detect Units Error (+/-) Uncertainty Limit **Analysis** Qualifiers* Results Method

2722

ug/kg

BOR14V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR14LAS08

Collected: 5/6/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Qualifiers* Results **Analysis**

Counting Total Propagated Uncertainty Error (+/-)

Detect Limit Method

VOA

Trichloroethene

1 ug/kg

Units

<u>Units</u>

SW846-8021 M

BOR14LAS23

Collected: 5/6/2002

Matrix: SOIL

Qualifiers* Results

Qualifiers* Results

U

Media Type: SO

Sample Type: REG

Counting Total Propagated <u>Detect</u>

Method

SW846-8021 M

Analysis VOA

Trichloroethene

2426 ug/kg Error (+/-) Uncertainty <u>Limit</u>

BOR14LAS38

Collected: 5/6/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

<u>Analysis</u>

Counting Total Propagated Error (+/-) Uncertainty <u>Limit</u>

Detect_

Method

VOA

Trichloroethene 3214 ug/kg

<u>Units</u>

BOR15V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR15LAS04

Collected: 5/2/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis VOA

Qualifiers* Results Units

Counting Error (+/-)

Total Propagated Uncertainty

Detect <u>Limit</u>

Method

SW846-8021 M

Trichloroethene U 1 ug/kg

BOR15LAS08

Collected: 5/2/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

<u>Analysis</u>

Qualifiers* Results

Units

Counting Total Propagated Error (+/-) Uncertainty

<u>Detect</u> <u>Limit</u>

Method

SW846-8021 M

VOA

U Trichloroethene

ug/kg

BOR15LAS23

Collected: 5/2/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

<u>Analysis</u>

Qualifiers* Results

<u>Units</u>

Counting Total Propagated Error (+/-)

<u>Detect</u> Uncertainty <u>Limit</u>

<u>Method</u>

VOA

Trichloroethene

975 ug/kg

Error (+/-)

SW846-8021 M

BOR15LAS38

Collected: 5/2/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis

Qualifiers* Results

Counting

Total Propagated

<u>Detect</u>

<u>Limit</u>

VOA

Trichloroethene 2325 ug/kg

<u>Units</u>

Uncertainty

Method

Method

Method

Paducah-OREIS Data Report

BOR16V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR16LAS04

Sample Type: REG Collected: 5/1/2002 Matrix: SOIL Media Type: SO

Counting Total Propagated Detect Uncertainty Limit Error (+/-) Analysis Qualifiers* Results **Units Method**

VOA

Trichloroethene 1126 ug/kg SW846-8021 M

BOR16LAS08

Matrix: SOIL Media Type: SO Sample Type: REG Collected: 5/1/2002

Counting Total Propagated <u>Detect</u> Limit

Uncertainty Error (+/-) Qualifiers* Results <u>Units</u> <u>Analysis</u>

VOA Trichloroethene 1751 ug/kg SW846-8021 M

BOR16LAS23

Collected: 5/1/2002 Matrix: SOIL Media Type: SO Sample Type: REG

Counting Total Propagated Detect Error (+/-) Uncertainty Limit **Analysis** Qualifiers* Results Units

VOA U SW846-8021 M Trichloroethene 1 ug/kg

BOR16LAS38

Matrix: SOIL Media Type: SO Collected: 5/1/2002 Sample Type: REG

Total Propagated Detect Counting Error (+/-) Uncertainty Analysis Qualifiers* Results Units Limit Method VOA

Trichloroethene U SW846-8021 M 1 ug/kg

BOR16LAS48

Matrix: SOIL Collected: 5/1/2002 Media Type: SO Sample Type: REG

Error (+/-) Uncertainty <u>Limit</u> Qualifiers* Results **Units** Method **Analysis** VOA 1,1-Dichloroethene U 1 ug/kg SW846-8260A 1 cis-1,2-Dichloroethene 33 ug/kg SW846-8260A trans-1,2-Dichloroethene U SW846-8260A ug/kg Trichloroethene 59 ug/kg SW846-8021 M Trichloroethene 17 ug/kg SW846-8260A Vinyl chloride U SW846-8260A 1 ug/kg

Counting

Total Propagated

<u>Detect</u>

BOR17V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR17LAS08

Collected: 5/1/2002 Matrix: SOIL Media Type: SO Sample Type: REG

Analysis Qualifiers* Results Units Error (+/-) Uncertainty Detect

| Counting | Total Propagated | Detect | Uncertainty | Unit | Method

VOA

Trichloroethene U 1 ug/kg SW846-8021 M

BOR17LAS23

Collected: 5/1/2002 Matrix: SOIL Media Type: SO Sample Type: REG

Counting Total Propagated <u>Detect</u> Error (+/-) Uncertainty <u>Limit</u> Qualifiers* Results Units <u>Method</u> <u>Analysis</u> VOA 5 SW846-8260A 1,1-Dichloroethene ug/kg cis-1,2-Dichloroethene 10 ug/kg SW846-8260A trans-1,2-Dichloroethene U SW846-8260A 1 ug/kg Ε 1000 SW846-8260A Trichloroethene 1200 ug/kg Trichloroethene Ε 2100 ug/kg 10 SW846-8260A Trichloroethene 9.3 ug/kg SW846-8021 M Vinyl chloride U ug/kg SW846-8260A 1

BOR17LAS38

Collected: 5/1/2002 Matrix: SOIL Media Type: SO Sample Type: REG

Analysis Qualifiers* Results Units Error (+/-) Uncertainty Limit Method

VOA

Trichloroethene U 1 ug/kg 1 SW846-8021 M

BOR18V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR18LAS08

Collected: 5/7/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG	
<u>Analysis</u>	Qualifiers* Results	Units Counting Error (+/-)	Total Propagated Detect Uncertainty Limit Met	thod
VOA Trichloroethene	U	ug/kg	1 SW846	5-8021 M
BOR18LAS23				
Collected: 5/7/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG	
Analysis VOA	Qualifiers* Results	Units Counting Units Error (+/-)		thod
Trichloroethene	U 1	ug/kg	1 SW846	6-8021 M
BOR18LAS38				
Collected: 5/7/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG	
Analysis VOA	Qualifiers* Results	Units Counting Error (+/-)	Total Propagated Detect Uncertainty Limit Mer	thod
Trichloroethene	U 1	ug/kg	SW846	5-8021 M

BOR19V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR19LAS08

Collected: 5/3/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis

Qualifiers* Results

Counting Total Propagated Error (+/-) <u>Units</u>

Detect Uncertainty <u>Limit</u>

<u>Method</u>

VOA

Trichloroethene

1.1 ug/kg

SW846-8021 M

BOR19LAS23

Collected: 5/3/2002

Matrix: SOIL

Qualifiers* Results

Media Type: SO

Sample Type: REG

<u>Analysis</u> VOA

Trichloroethene

Total Propagated Counting Error (+/-) Uncertainty

Detect <u>Limiţ</u>

Method SW846-8021 M

BOR19LAS38

Collected: 5/3/2002

Matrix: SOIL

U

Media Type: SO

Sample Type: REG

<u>Analysis</u>

Qualifiers* Results Units Counting Error (+/-)

Total Propagated Uncertainty

Detect <u>Limit</u>

<u>Method</u>

VOA

Trichloroethene

ug/kg

Units

ug/kg

Method

SW846-8021 M

Paducah-OREIS Data Report

BOR20V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR20LAS08

Collected: 5/2/2002 Matrix: SOIL Sample Type: REG Media Type: SO

Counting Total Propagated Detect Error (+/-) Uncertainty Limit Qualifiers* Results Units Method **Analysis**

VOA

SW846-8021 M Trichloroethene 5 ug/kg

BOR20LAS23

Collected: 5/2/2002 Matrix: SOIL Media Type: SO Sample Type: REG

Total Propagated Counting Detect

Error (+/-) Uncertainty Limit Qualifiers* Results Units <u>Analysis</u>

VOA

U SW846-8021 M Trichloroethene 1 ug/kg

BOR20LAS38

Collected: 5/2/2002 Matrix: SOIL Media Type: SO Sample Type: REG

Counting Total Propagated Detect Method

Qualifiers* Results Error (+/-) Uncertainty Limit <u>Analysis</u> Units

VOA SW846-8021 M U Trichloroethene 1 ug/kg

BOR20LAS48

Collected: 5/2/2002 Matrix: SOIL Media Type: SO Sample Type: REG

Counting Total Propagated Detect

U

Limit Error (+/-) Uncertainty Analysis Qualifiers* Results **Units** <u>Method</u> **VOA**

ug/kg

Trichloroethene **BOR20DLAS48**

VOA

Collected: 5/2/2002 Media Type: SO Matrix: SOIL Sample Type: FR

Counting Total Propagated Detect Method

Error (+/-) Uncertainty Limit Qualifiers* Results **Units** <u>Analysis</u>

SW846-8021 M Trichloroethene U ug/kg

BOR21V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR21LAS08

Collected: 5/3/2002

Matrix: SOIL

Media Type: SO

Error (+/-)

Sample Type: REG

Analysis

Qualifiers* Results

Units

Counting Total Propagated Uncertainty

Detect Limit Method

VOA

Trichloroethene U ug/kg

SW846-8021 M

BOR21LAS23

Collected: 5/3/2002

Matrix: SOIL

Qualifiers* Results

Media Type: SO

Sample Type: REG

Counting Total Propagated Detect

Limit

<u>Analysis</u> VOA

Trichloroethene

577 ug/kg Error (+/-) Uncertainty Method

BOR21LAS38

Collected: 5/3/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis

Qualifiers* Results

Units

Units

Counting Total Propagated
Error (+/-) Uncertainty Limit

Detect

Method

SW846-8021 M

VOA

Trichloroethene

1213

ug/kg

BOR22V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR22LAS08

Collected: 5/6/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis

VOA

Qualifiers* Results

Counting Error (+/-) Units

Total Propagated Uncertainty

<u>Detect</u> <u>Limit</u> <u>Method</u>

SW846-8021 M

BOR22LAS23

Trichloroethene

Collected: 5/6/2002

Matrix: SOIL

U

Media Type: SO

Sample Type: REG

Analysis

Qualifiers* Results VOA

Units

ug/kg

ug/kg

ug/kg

Error (+/-)

Counting Total Propagated Uncertainty

<u>Detect</u> Limit <u>Method</u>

SW846-8021 M

BOR22LAS38

Trichloroethene

Collected: 5/6/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

<u>Analysis</u> VOA

Qualifiers* Results <u>Units</u>

259

252

1

Error (+/-)

Counting Total Propagated **Uncertainty**

Detect <u>Limit</u>

Method

SW846-8021 M

Trichloroethene

BOR22DLAS08

Collected: 5/6/2002

Matrix: SOIL

U

Media Type: SO

Sample Type: FR

Analysis

Qualifiers* Results

Counting

Total Propagated Uncertainty Error (+/-)

<u>Detect</u>

<u>Limit</u>

Method

VOA

Trichloroethene

1

ug/kg

Units

SW846-8021 M

Paducah-OREIS Data Report

BOR23V

VOA

Trichloroethene

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR23LAS08

Collected: 5/6/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG		
<u>Analysis</u>	Qualifiers* Results	Units Counting Error (+/-)	Total Propagated Detect Uncertainty Limit Method		
VOA Trichloroethene	U 1	ug/kg	SW846-8021 M		
BOR23LAS23					
Collected: 5/6/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG		
<u>Analysis</u>	Qualifiers* Results	<u>Counting</u> <u>Units</u> <u>Error (+/-)</u>	Total Propagated Detect Uncertainty Limit Method		
VOA Trichloroethene	511	ug/kg	SW846-8021 M		
BOR23LAS38					
Collected: 5/6/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG		
Analysis	Qualifiers* Results	Units Counting Error (+/-)	Total Propagated Detect Uncertainty Limit Method		

1239

ug/kg

BOR24V

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOR24LAS08

Collected: 4/30/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

Analysis

Qualifiers* Results

Units Error (+/-)

<u>Counting Total Propagated Detect</u> <u>Error (+/-) Uncertainty Limit</u>

Method

<u>Method</u>

VOA

Trichloroethene

32.4 ug/kg

SW846-8021 M

BOR24LAS23

Collected: 4/30/2002

Matrix: SOIL

Qualifiers* Results

Media Type: SO

Error (+/-)

Sample Type: REG

Counting Total Propagated

Uncertainty

Detect Limit Me

Analysis VOA

Trichloroethene

8.4

<u>Units</u>

ug/kg

SW846-8021 M

BOR24LAS38

Collected: 4/30/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

O01100100. 470072002	Mann. OC	/ I L	modia Typo: GG		campio Typo: Tizo		
Analysis VOA	Qualifiers*	Results	<u>Units</u>	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	Method
							014/04/0 00004
1,1-Dichloroethene	U	1	ug/kg			1	SW846-8260A
cis-1,2-Dichloroethene	U	1	ug/kg			1	SW846-8260A
trans-1,2-Dichloroethene	U	1	ug/kg			1	SW846-8260A
Trichloroethene		1.1	ug/kg			1	SW846-8021 M
Trichloroethene	U	1	ug/kg			1	SW846-8260A
Vinyl chloride	U	1	ug/kg			1	SW846-8260A

BOREAV

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BOREALAS08

Collected: 5/7/2002

Matrix: SOIL

Media Type: SO

Units

Units

Sample Type: REG

Analysis

Qualifiers* Results

Counting Error (+/-)

Total Propagated <u>Detect</u> Uncertainty Limit

Method

VOA

Trichloroethene

ug/kg

SW846-8021 M

BOREALAS23

Collected: 5/7/2002

Matrix: SOIL

U

U

U

Media Type: SO

Sample Type: REG

Analysis

Qualifiers* Results

Counting Error (+/-)

Total Propagated Detect Uncertainty <u>Limit</u>

Method

VOA

Trichloroethene

1 ug/kg

1

SW846-8021 M

BOREALAS38

Collected: 5/7/2002

Matrix: SOIL

Media Type: SO

Sample Type: REG

<u>Analysis</u> VOA

Qualifiers* Results Units Error (+/-)

Counting Total Propagated Detect Uncertainty Limit

Method SW846-8021 M

BOREADLAS23

Trichloroethene

Collected: 5/7/2002

Matrix: SOIL

Media Type: SO

Sample Type: FR

Analysis

Qualifiers* Results

<u>Units</u>

ug/kg

Counting Total Propagated Uncertainty Error (+/-)

Detect Limit

Method

VOA

Trichloroethene U ug/kg

BORNOV

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BORNOLAS08

Collected: 5/1/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG
<u>Analysis</u>	Qualifiers* Results	Counting Units Error (+/-)	Total Propagated Detect Uncertainty Limit Method
VOA			014/0.40.0000.4
1,1-Dichloroethene	U 1	ug/kg 	SW846-8260A
cis-1,2-Dichloroethene	3	ug/kg	SW846-8260A
trans-1,2-Dichloroethene	U 1	ug/kg	SW846-8260A
Trichloroethene	U 1	ug/kg	SW846-8021 M
Trichloroethene	6	ug/kg	SW846-8260A
Vinyl chloride	U 1	ug/kg	SW846-8260A
BORNOLAS23			
Collected: 5/1/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG
Analysis VOA	Qualifiers* Results	<u>Counting</u> <u>Units</u> <u>Error (+/-)</u>	Total Propagated Detect Uncertainty Limit Method
Trichloroethene	3	ug/kg	SW846-8021 M
BORNOLAS38			
Collected: 5/1/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG
Analysis VOA	Qualifiers* Results	Counting Units Error (+/-)	Total Propagated Detect Uncertainty Limit Method
Trichloroethene	U	ug/kg	1 SW846-8021 M

*QUALIFIER Codes See attached List. Page 26 of 31

SW846-8021 M

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BORSOV

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BORSOLAS08

<u>Analysis</u> VOA Trichloroethene

Collected: 5/8/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG		
Analysis	Qualifiers* Results	Units Counting Error (+/-)			
VOA Trichloroethene	U	ug/kg	1 SW846-8021 M		
BORSOLAS23					
Collected: 5/8/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG		
Analysis VOA	Qualifiers* Results	Units Counting Error (+/-)			
Trichloroethene	U 1	ug/kg	1 SW846-8021 M		
BORSOLAS38					
Collected: 5/8/2002	Matrix: SOIL	Media Type: SO	Sample Type: REG		
<u>Analysis</u>	Qualifiers* Results	Units Error (+/-)			

ug/kg

1

U

SW846-8260A

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BORWEV

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

BORWELAS08

Collected: 5/1/2002 Matrix: SOIL Media Type: SO Sample Type: REG

VOA

Trichloroethene U ug/kg 1 SW846-8021 M

BORWELAS23

Matrix: SOIL Media Type: SO Sample Type: REG Collected: 5/1/2002 Total Propagated Detect Counting Error (+/-) Uncertainty Limit Qualifiers* Units Method **Results Analysis** VOA U 1 SW846-8260A 1,1-Dichloroethene ug/kg cis-1,2-Dichloroethene U 1 ug/kg SW846-8260A

SW846-8260A U trans-1,2-Dichloroethene 1 ug/kg SW846-8021 M Trichloroethene U 1 ug/kg 1 SW846-8260A Trichloroethene U 1 ug/kg

ug/kg

BORWELAS38

Vinyl chloride

Collected: 5/1/2002 Matrix: SOIL Media Type: SO Sample Type: REG

1

U

Analysis Qualifiers* Results Units Error (+/-) Uncertainty Limit Method

 VOA

 Trichloroethene
 U
 1 ug/kg
 1 SW846-8021 M

QC

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

TB1LAS4-02

IBILAG4-02							
Collected: 4/30/2002	Matrix: WATER		Media	Type: WQ		Sample Type:	ТВ
				Counting	Total Propagated		
<u>Analysis</u>	Qualifiers* Results	<u> </u>	<u>Units</u>	Error (+/-)	<u>Uncertainty</u>	<u>Limit</u>	<u>Method</u>
VOA		_				•	0141040 00004
1,1-Dichloroethene	U	2	ug/L			2	SW846-8260A
cis-1,2-Dichloroethene	U	2	ug/L			2	SW846-8260A SW846-8260A
trans-1,2-Dichloroethene Trichloroethene	U U	2 2	ug/L ug/L			2	SW846-8260A
Trichloroethene	U	1	ug/L ug/L			1	SW846-8021 M
Vinyl chloride	U	1	ug/L			1	SW846-8260A
TB2LAS4-02							
Collected: 5/1/2002	Matrix: WATER		Media ¹	Type: WQ		Sample Type:	ТВ
					Total Propagated		
Analysis	Qualifiers* Results	3	<u>Units</u>	Counting Error (+/-)	Uncertainty	<u>Limit</u>	Method
VOA		-					
Trichloroethene	U	1	ug/L				SW846-8021 M
TB4LAS4-02							
Collected: 5/3/2002	Matrix: WATER		Media ¹	Type: WQ		Sample Type:	ТВ
				Counting	Total Propagated	Detect	
<u>Analysis</u>	Qualifiers* Results	<u> </u>	<u>Units</u>	Error (+/-)	Uncertainty	<u>Limit</u>	<u>Method</u>
VOA							
Trichloroethene	U	1	ug/L				SW846-8021 M
TB5LAS4-02							
Collected: 5/6/2002	Matrix: WATER		Media ¹	Type: WQ		Sample Type:	ТВ
				Counting	Total Propagated		
<u>Analysis</u>	Qualifiers* Results	3	Units	Error (+/-)	Uncertainty	<u>Limit</u>	Method
VOA		-					
Trichloroethene	U		ug/L				SW846-8021 M
TB7LAS4-02							
Collected: 5/8/2002	Matrix: WATER		Media ⁻	Type: WQ		Sample Type:	ТВ
					Total Propagated		
<u>Analysis</u>	Qualifiers* Results	:	<u>Units</u>	Error (+/-)	Uncertainty	<u>Limit</u>	<u>Method</u>
VOA		-	<u> </u>				
Trichloroethene	U		ug/L			1	SW846-8021 M
RI1LAS4-02							
Collected: 4/30/2002	Matrix: WATER		Media 1	Type: WQ		Sample Type:	RI
	Madix. Willer		viouia.			400	
Analysis	Qualifiers* Results	ì	Units	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method
VOA		•		named (All Company)	The second secon		
1,1-Dichloroethene	U	2	ug/L			2	SW846-8260A
cis-1,2-Dichloroethene	Ü	2	ug/L			2	SW846-8260A
trans-1,2-Dichloroethene	Ü	2	ug/L			2	SW846-8260A
Trichloroethene	Ü	1	ug/L			1	SW846-8021 M
		•					
Trichloroethene	υ	2	ug/L			2	SW846-8260A

QC

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

RI3LAS4-02

Collected: 5/6/2002	Matrix: WATER		Media	Type: WQ		Sample Type	: RI
				Counting	Total Propagated		
Analysis	Qualifiers* Results		Units	Error (+/-)	Uncertainty	<u>Limit</u>	Method
VOA Trichloroethene	U	1	ug/L				SW846-8021 M
RI4LAS4-02							
Collected: 5/7/2002	Matrix: WATER		Media	Type: WQ		Sample Type	: RI
<u>Analysis</u>	Qualifiers* Results		Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> <u>Limit</u>	Method
VOA							
Trichloroethene	U	1	ug/L				SW846-8021 M
RI5LAS4-02							
Collected: 5/8/2002	Matrix: WATER		Media	Type: WQ		Sample Type:	: RI
<u>Analysis</u>	Qualifiers* Results		Units	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> Limit	Method
VOA	<u>Qualificio</u> 1,000tto		<u>0,1110</u>				
Trichloroethene	U	1	ug/L				SW846-8021 M
RB1LAS4-02							
Collected: 5/1/2002	Matrix: WATER		Media	Type: WQ		Sample Type	: RB
Analysis			Inite	Counting Error (+/-)	Total Propagated Uncertainty	<u>Detect</u> Limit	Method
Analysis VOA			<u>Units</u>	<u>=1(0) (1:7-)</u>	Oncortainty	<u> </u>	Mediloa
Trichloroethene	U	1	ug/L			1	SW846-8021 M
FB1LAS4-02						: <u></u>	
Collected: 4/30/2002	Matrix: WATER		Media	Type: WQ		Sample Type:	: FB
				Counting	Total Propagated		
<u>Analysis</u>	Qualifiers* Results		<u>Units</u>	Error (+/-)	<u>Uncertainty</u>	<u>Limit</u>	Method
VOA	11	0				^	CINIGAE GOGOA
1,1-Dichloroethene	U	2	ug/L			2	SW846-8260A SW846-8260A
cis-1,2-Dichloroethene	U ·	2	ug/L			2	SW846-8260A
trans-1,2-Dichloroethene Trichloroethene		2 2	ug/L			2	SW846-8260A
Trichloroethene Trichloroethene	U	1	ug/L			1	SW846-8021 M
Vinyl chloride	U U	1	ug/L ug/L			1	SW846-8260A
		•	-3-				
FB2LAS4-02			1.1	T 1110		Demonstration Transmission	
Collected: 5/1/2002	Matrix: WATER		Media	Type: WQ		Sample Type:	FB
Anghala	Qualifiers* Results		Units	Counting Error (+/-)	Total Propagated Uncertainty	Detect Limit	Method
Analysis	Quainers Results		Units	F131 1171	SHOULDING		IVICUIUU

ug/L

SW846-8021 M

Analysis VOA

Trichloroethene

U

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Paducah-OREIS Data Report

QC

ERI02-SWMU91-V

Lasagna Verification Sampling ERI02-SWMU91-V

FB4LAS4-02

Collected: 5/3/2002

Matrix: WATER

Media Type: WQ

Sample Type: FB

Analysis

Qualifiers* Results

U

U

Error (+/-) <u>Units</u>

Counting Total Propagated <u>Detect</u> Limit

<u>Method</u>

SW846-8021 M

VOA

Trichloroethene

ug/L

Uncertainty

FB5LAS4-02

Collected: 5/7/2002

Matrix: WATER

Qualifiers* Results

Media Type: WQ

Sample Type: FB

Error (+/-)

Counting Total Propagated <u>Detect</u> **Uncertainty** <u>Limit</u>

Method

<u>Analysis</u> VOA

Trichloroethene

ug/L

<u>Units</u>

AA	Ambient Air	TW	Treated Water
AG	Soil Gas	WC	Wall corings
AQ	Air Quality Control Matrix		Well Development Water
	Biota, Whole Animal		Estuary
	Drill Cuttings		Groundwater
ĒΑ	Effluent Air		Equipment Wash Water, i.e., Water used for Washing
	Biota, Excreta (feces)		Water that has leached through waste
	Filter Residue		Ocean Water
	Filter		Drinking Water
	Grout		Water Quality Control Matrix
	Green Salt		Surface Water
	Drilling Fluid		Water From Vadose Zone
	Liquid Emulsion		Waste Water
	Floating/Free Product on Groundwater Table	WZ	Special Water Quality Control Matrix
	Oil, All Types (Transformer, Waste, Motor, Mineral)	YC	Yellow Cake
	Liquid from tank	10	Tellow Cake
	Liquid From Vadose Zone		SmpMethod Codes
	Metal Shavings	?	Other, defined in COMMENTS column
		CSF	
	Not Available	ES	Continuous Sample Flow
	Non-Water Liquid	FPC	Estimate Flow Branatianal Composite
	Precipitation	GR	Flow Proportional Composite Grab
	Porewater Aguatia Animal		
	Aquatic Animal	NA	Not Applicable
	Aquatic Bird	SC	Spatial Composite
QC	Aquatic (Some combination of at least 2) of bird, plant,	SPLT	Split
0 N	animal; Excludes benthic organism	TC	Temporal Composite
	Benthic Organism		Carranta Tama Cardas
	Aquatic Plant	_	SampleType Codes
	Cement	?	Other, defined in COMMENTS column
	Sediment (associated with surface water)	DI	Deionized Water used for preparing blanks, etc.
	Filter Sandpack	DIL	Laboratory dilution
	Sludge	FB	Field Blank
	Supernatant	FR	Field Replicate (Code used for Field Duplicate)
	Soil	PRBL	
	Floor Sweepings	RB	Refrigerator blank
	Soil/Solid Quality Control Matrix	REG	Regular
	Scrapings	REG2	
	Swab or Wipe	REP	Replicate
SZ	Solid Waste	REP1	•
TA	Animal Tissue	REP2	
	Terrestrial Bird	REP3	
TC	Terrestrial (Some combination at least 2) of bird, plant, or	REP4	
	animal.)	RI	QC Equipment Rinsate/Decon
	Plant Tissue	TB	Trip Blank
TQ	Tissue Quality Control Matrix	TLC	Toxicity Laboratory Control Sample
	Laboratory F	Pacult (andas .

Media Type Codes (Continued)

Laboratory Result Codes

Footnote

A Insufficient uranium present in the sample to determine an assay.

Media Type Codes

- B Maximum assay was used to calculate the MDA for total uranium activities.
- C Normal assay was used to calculate the MDA for total uranium activites.
- D Sample was analyzed by a non-destructive test per customer request.
- E Gross activities are a calculated value. Gamma activity is converted to the corresponding gross alpha/beta measurement.
- F Insufficient sample available/provided for gross beta analysis.
- G TIMS assay used to calculate total uranium activity.
- H No nuclide meet criteria for gross gamma.
- The MDA of all principal nuclide not identified and nuclide identified were summed to provide max. reportable activity.
- J No analysis result available. Sample signal too weak.
- K No analysis result available. Total U below reporting limit.
- L No minor isotope determination available. Signal strength insufficient.
- M Result is biased high and MDA is biased low due to interfering lines and/or increases in BKG due to sample activity.
- N Measured U-235 act/mass was below MDA therefore all other cal. U isotopes & U-total wil be rpt as below their resp. MDAs
- O Gross Gamma has no output error.
- P The max, plant assay was assumed since the calculated assay was not within the range of plant cascade assays.
- Q Mass of U-235 is < or = MDM, thus mass of total U/U isotopes won't be reported. Total U/U isotopes will be < their MDMs.
- R Cs-134 activity will be understated due to the short half-life and will exclude any previous site induced Cs-134.
- S Gross gamma is a Cs-137 equivalence. Activity assumes branch yield and det eff of Cs-137 for all lines in spectrum.
- T Analyte is a common volatile laboratory contaminant.
- W Analyte is present at the LCR.
- Z Std Dev is calculated based on controls (SRM) prepared and analyzed with each sample batch. SRM is ~0.711 wt% U-235.

Laboratory Result Codes (continued)

Inorganic

- * Duplicate analysis not within control limits.
- Method of standard additions (MSA) correlation coefficient less than 0.995.
- Analyte analyzed for but not detected at or below the lowest concentration reported.
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Indicates that a TIC is suspected aldol-condensation product
- B Applies when the analyte is found in the associated blank
- D All compounds identified in the analysis at the secondary dilution factor
- E Result estimated due to interferences.
- J Indicates an estimated value
- M Duplicate injection precision not met.
- N Sample spike recovery not within control limits.
- Q No analytical result available or not required because total analyses < PQL
- R QC indicates that data are not usable. Resampling and re-analysis are necessary for verification
- S Result determined by method of standard additions (MSA).
- U Analyte analyzed for but not detected at or below the lowest concentration reported.
- W Post-digestion spike recovery out of control limits.
- X Other specific flags and footnotes may be required to properly define the results

Organic

- < Analyte analyzed for but not detected at or below the lowest concentration reported.
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Tentatively identified compound (TIC) is suspected aldol-condensation product.
- B Compound found in blank as well as sample.
- C Compound presence confirmed by GC/MS. (GC/MS flag)
- D Compounds identified in an analysis at a secondary dilution factor.
- E Result exceeds calibration range. (GC/MS flag)
- J Indicates an estimated value
- N Presumptive evidence of a compound. (GC/MS flag)
- P Difference between results from two GC columns unacceptable.
- U Compound analyzed for but not detected at or below the lowest concentration reported.
- X Other specific flags and footnotes may be required to properly define the results
- Y MS, MSD recovery and/or RPD failed acceptance criteria
- Z (Reserved by CLP for a laboratory-defined organic data qualifier.)

Rads

- < Analyte analyzed for but not detected at or below the lowest concentration reported.</p>
- ! Indicates that a qualifier is present on the data (historical qualifier).
- A Analyzed but not detected at the analyte quantitation limit.
- B Method blank not statistically different from sample at 95% level of confidence.
- D Sample is statistically different from duplicate at 95% level of confidence.
- J Indicates an estimated value.
- Expected and measured value for LCS is statistically different at 95% level of confidence.
- M Expected and measured value for MS is statistically different at 95% level of confidence.
- R QC indicates that data are not usable. Resampling and reanalysis are necessary for verification.
- T Tracer recovery is < or equal to 30% or > or equal to 105%.
- U Value reported is < the MDA and/or < 2 sigma TPE.
- X Other specific flags and footnotes may be required to properly define the results.

	Verification Codes		Validation Codes (continued)
?	Other, defined in COMMENTS column	N	The analysis indicates the presence of an analyte for
В	Result exceeds background criteria		which there is presumptive evidence to make a
	Result exceeds established criteria		"tentative identification."
S	Result exceeds statistical controls based on historical	R	Result rejected by validator.
	data	U	The analyte was analyzed for, but was not detected
	Holding time exceeded for this analysis		above the reported sample quantitation limit.
	Result exceeds permit limits	UJ	Analyte, compound or nuclide not detected above the reported detection limit, and the reported detection
	Validation Codes		limit is approximated due to quality deficiency.
	Validated result, which is detected and unqualified	Х	Not validated; Refer to the RSLTQUAL field for more
	Other, defined in COMMENTS column		information
	The analyte was positively identified; the associated	XV	Not validated; Refer to the RSLTQUAL field for more
	numerical value is the approximate concentration of the		information
	analyte in the sample.	XX	Unknown; Refer to the RSLTQUAL field for more
			information
		XZ	Data evaluation performed; Validation qualifiers not
			applied; Refer to RSLTQUAL field for more information

Assessment Qualifier Codes

? Other, defined in COMMENTS column

BH-ER Result may be biased high; chemical detected in associated equipment rinseate

BH-FB Result may be biased high; chemical detected in associated field blank

BH-FB,& Result may be biased high; chemical detected in associate field blank. See comments for additional assessment

qualifiers

BH-LAB Result may be biased high; compound is a known or probable lab contaminant

BH-LABPR Result biased high due to laboratory process

BH-PURGE Result may be biased high; sample may be diluted with driling fluid due to insufficient purging prior to sampling

BH-RB Result may be biased high; chemical detected in associated refrigerator blank
BH-RI Result may be biased high; chemical detected in associated equipment rinsate.

BH-SOLID Result biased high due to sample containing a large amount of solids

BH-SS Result may be biased high; sample may contain particles of the acetate sampling sleeve

BH-TEMP Result biased high due to a temperature exceedance.

BL-LAB Result may be biased low; compound is a known or probable lab contaminant

BL-LABPR Result biased low due to laboratory process

BL-PURGE Result may be biased low; sample may be diluted with drilling fluid due to insufficient purging prior to sampling BL-PURGE,& Result may be biased low; sample may be diluted with drilling fluid due to insufficient purging prior to sampling. See

comments for additional assessment qualifiers

BL-T Result may be biased low; sample holding time exceeded

BL-T,J Result may be biased low; sample holding time exceeded, estimated

BL-TEMP Result biased low due to a temperature exceedance

DIS-EDDF1 Discrepancies exist between the EDD and the Form 1. Form 1s are generated by instrument software that automatically

reports all detected compounds. It is the lab's policy to not report quantities below LCRs within their EDD format. Both

sets of data are correct. However, the EDD format data, which feeds OREIS, will be used for reporting.

IN-LAB Result should be considered information only. Compound is a known or probable lab contaminant

IN-LAB,& Result should be considered information only. Compound is a known or probable lab contaminant. See comments for

additional assessment qualifiers

IN-METH Result should be considered information only. Lab utilized a modified method.

J Result estimated

KYRHTAB-50 Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the rad error accounts for greater than 50% of the results.

KYRHTAB-ER Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the data presents error problems (ie., no counting uncertainty or

zero counting uncertainty).

KYRHTAB-LT Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the results are less than (LT) the maximum detectable activity

(MDA) or detection limit and should not be plotted.

KYRHTAB-NE Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the rad error exhibits a negative value, which is a statistical outlier.

KYRHTAB-OK Kentucky Radiation Health and Toxic Agents Branch (KYRHTAB) has performed an independent data evaluation (not to

be confused with data verification and validation) and the data is acceptable for use.

N/A Not Applicable

NOVAL Validation requested but qualifier not provided due to missing Form I
NOVAL-FLAB Validation targeted for this project but not required for field laboratory data.

NR Assessment question not resolved.

R Result unusable.

R-C Result questionable, credibility at issue.

R-C,& Result questionable, credibility at issue. See comments for additional assessment qualifiers

R-H Result unusable due to historical trending (i.e., outlier).

R-HSS Rejected due to high suspended solids content.

R-MTRX Result rejected due to matrix interference.

R-NORAD Result unusable; Uranium-235 portion of calculation is below reliable detection limits.

R-NORAD,& Result unusable; Uranium-235 portion of calculation is below reliable detection limits. See comments for additional

assessment qualifiers

R-NTRSFW Result rejected; not a true representative sample of formation water

R-PRES Result rejected due to improper preservative added.
R-RERUN Result unusable, results from re-analysis should be used

R-T Result rejected due to missed holding time

U Not detected

U,J Not detected and result estimated

U-RAD Result considered a non-detect; instrument measurement error is equal to or greater than the reported result U-RAD,& Result considered a non-detect; instrument measurement error is equal to or greater than the reported result, see

comments for additional assessment qualifiers

APPENDIX F SUMMARY TABLES OF SAMPLING EVENTS

Table F.1 TCE Concentrations Baseline, Progress Event A, and Progress Event B

Sample Location	Sample Depth (ft bgs)	Baseline TCE Concentration (ppm)	Progress Sampling Event A TCE Concentration (ppm)	Progress Sampling Event B TCE Concentration (ppm)
1a	6	Non-detect	Not sampled	Not sampled
	11	Non-detect	Not sampled	Not sampled
	16	Non-detect	Not sampled	Not sampled
	21	Non-detect	Not sampled	Not sampled
1b	26	Non-detect	Not sampled	Not sampled
	31	Non-detect	Not sampled	Not sampled
	38	Non-detect	Not sampled	Not sampled
	41	Non-detect	Not sampled	Not sampled
	46	Non-detect	Not sampled	Not sampled
2	6	Non-detect	Not sampled	Not sampled
	11	Non-detect	Not sampled	Not sampled
	16	Non-detect	Not sampled	Not sampled
	21	Non-detect	Not sampled	Not sampled
	26	Non-detect	Not sampled	Not sampled
	31	Non-detect	Not sampled	Not sampled
	36	Non-detect	Not sampled	Not sampled
	41	Non-detect	Not sampled	Not sampled
	46	Non-detect	Not sampled	Not sampled
3	7	Non-detect	Not sampled	Not sampled
	11	Non-detect	Not sampled	Not sampled
	16	Non-detect	Not sampled	Not sampled
	21	Non-detect	Not sampled	Not sampled
	26	Non-detect	Not sampled	Not sampled
	31	Non-detect	Not sampled	Not sampled
	36	Non-detect	Not sampled	Not sampled
	41	Non-detect	Not sampled	Not sampled
	46	Non-detect	Not sampled	Not sampled
4	6	Non-detect	Not sampled	Not sampled
	11	Non-detect	Not sampled	Not sampled
	16	Non-detect	Not sampled	Not sampled
	21	Non-detect	Not sampled	Not sampled
	26	0.002	Not sampled	Not sampled
	33	Non-detect	Not sampled	Not sampled
	36	Non-detect	Not sampled	Not sampled
	41	.0019	Not sampled	Not sampled
	49	Non-detect	Not sampled	Not sampled
5a	6	Non-detect	Not sampled	Not sampled
	11	0.0025	Not sampled	Not sampled
	16	0.0577	Not sampled	Not sampled
	21	Non-detect	Not sampled	Not sampled
	26	0.365	Not sampled	Not sampled
	31	0.358	Not sampled	Not sampled
5b	36	Non-detect	Not sampled	Not sampled
	41	0.0052	Not sampled	Not sampled
	46	Non-detect	Not sampled	Not sampled

Table F.1 TCE Concentrations Baseline, Progress Event A, and Progress Event B

Sample Location	Sample Depth (ft bgs)	Baseline TCE Concentration (ppm)	Progress Sampling Event A TCE Concentration (ppm)	Progress Sampling Event B TCE Concentration (ppm)
6	6	3.10	Not sampled	21.5
	11	5.10	Not sampled	7.90
	16	29.4	1.82	0.197
	21	1.80	Not sampled	0.594
	26	26.4	0.232	0.025
	31	2.00	Not sampled	Not sampled
	36	0.110	Not sampled	Not sampled
	41	0.021	Not sampled	Not sampled
	46	Non-detect	Not sampled	Not sampled
7a	6	3.40	552	6.70
/ u	11	6.80	131	27.0
7b	16	4.00	44.0	2.90
70	21	9.90	16.0	0.092
	26	12.7	1.60	12.2
	31	26.3	1.10	1.90
	36	14.9	0.959	0.035
	41	0.0037	0.543	0.044
	46	0.0037		Non-detect
0			Not sampled	
8	6	0.002	Not sampled	0.780
	11	0.273	Not sampled	Non-detect
	16	0.176	Not sampled	Non-detect
	21	21.70	1.99	Non-detect
	26	3.60	Not sampled	Not sampled
	31	0.594	Not sampled	Not sampled
	36	0.0015	Not sampled	Not sampled
	41	Non-detect	Not sampled	Not sampled
	46	0.0018	Not sampled	Not sampled
9a	6	0.353	Not sampled	Non-detect
9b	11	3.60	Not sampled	Non-detect
	16	5.00	Not sampled	Non-detect
	21	16.3	28.0	Non-detect
	26	29.6	0.110	Non-detect
	31	3.70	0.004	Not sampled
	36	0.0016	0.010	Not sampled
	41	0.616	Not sampled	Not sampled
	46	0.0069	Not sampled	Not sampled
10	6	0.0277	Not sampled	Non-detect
	11	Non-detect	Not sampled	Non-detect
	16	0.741	Not sampled	Non-detect
	21	1.250	Not sampled	Non-detect
	26	0.113	Not sampled	Non-detect
	31	0.115	Not sampled	Not sampled
	36	1.40	0.009	Not sampled
	41	0.290	0.009	Not sampled
	46	0.254	0.020	Not sampled

Table F.2 TCE Concentrations Final Verification Sampling

Final Sample Location	Sample Depth (ft bgs)	TCE Concentration (ppm)
BOR01	8	Non-detect
	23	0.0026
	38	Non-detect
BOR02	8	Non-detect
	23	0.0414
	38	0.0083
BOR03	8	0.014
	23	Non-detect
	38	0.0079
BOR04	8	Non-detect
	23	Non-detect
	38	Non-detect
BOR05	8	Non-detect
	23	Non-detect
	38	Non-detect
BOR06	8	Non-detect
	23	Non-detect
	38	Non-detect
BOR07	8	Non-detect
	23	Non-detect
	38	Non-detect
BOR08	8	0.0025
	23	0.0013
	38	0.0029
BOR09	8	0.0072
	23	Non-detect
DOD10	38	0.011
BOR10	8	Non-detect
	23	Non-detect
BOR11	8	0.0072
BORTI	23	0.276
	38	0.0019
BOR12	8	0.0375
DOK12	23	2.442
	38	4.506
BOR13	8	Non-detect
DOMIJ	23	2.503
	38	2.722
BOR14	8	Non-detect
	23	2.426
	38	3.214
BOR15	4	Non-detect
	8	Non-detect
	23	0.975
	38	2.325

Sample	TCE
Depth	Concentration
(ft bgs)	(ppm)
4	1.126
8	1.751
23	Non-detect
38	Non-detect
48	0.059
8	Non-detect
23	0.0093
38	Non-detect
8	Non-detect
	Non-detect
38	Non-detect
8	0.0011
23	Non-detect
38	Non-detect
8	0.005
23	Non-detect
38	Non-detect
48	Non-detect
8	Non-detect
23	0.577
38	1.213
8	Non-detect
23	0.252
38	0.259
8	Non-detect
23	0.511
38	1.239
8	0.0324
23	0.0084
38	0.0011
8	Non-detect
23	Non-detect
38	Non-detect
8	Non-detect
23	0.003
38	Non-detect
8	Non-detect
23	Non-detect
38	Non-detect
8	Non-detect
23	Non-detect
38	Non-detect
	Depth (ft bgs) 4 8 23 38 48 8 23 38 8

APPENDIX G WELL ABANDONMENT FORMS

M	ИI	158
7.77	~	,

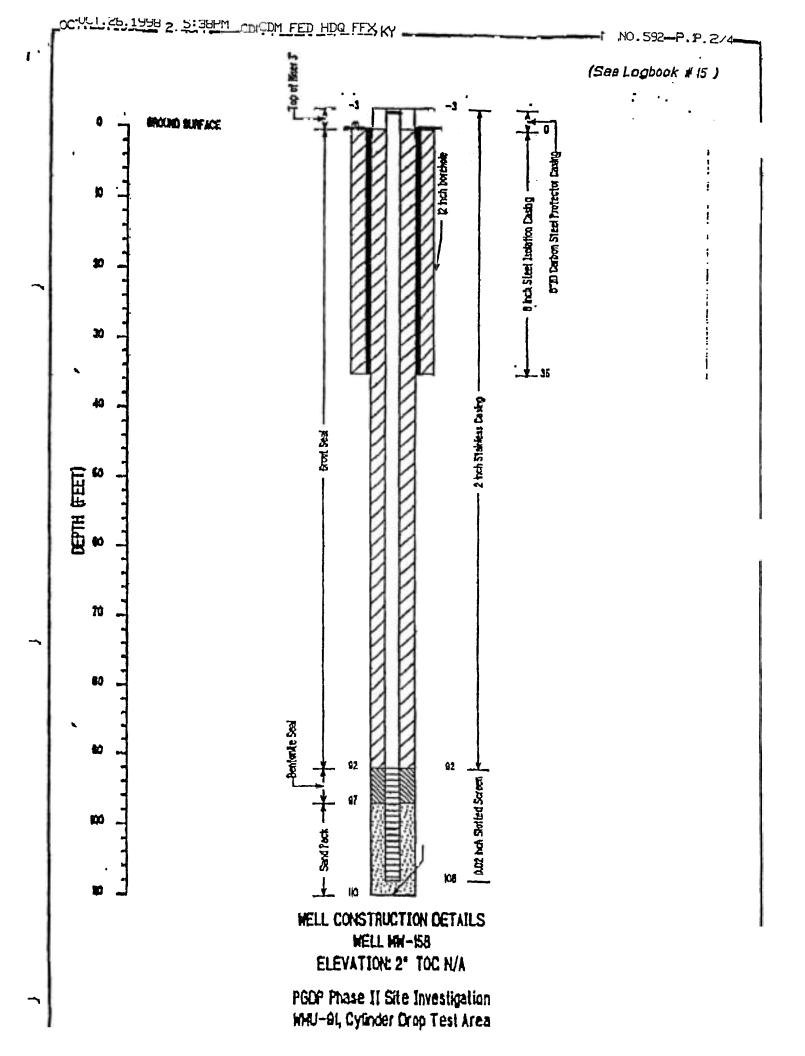
KENTUCKY MONITORING WELL RECORD

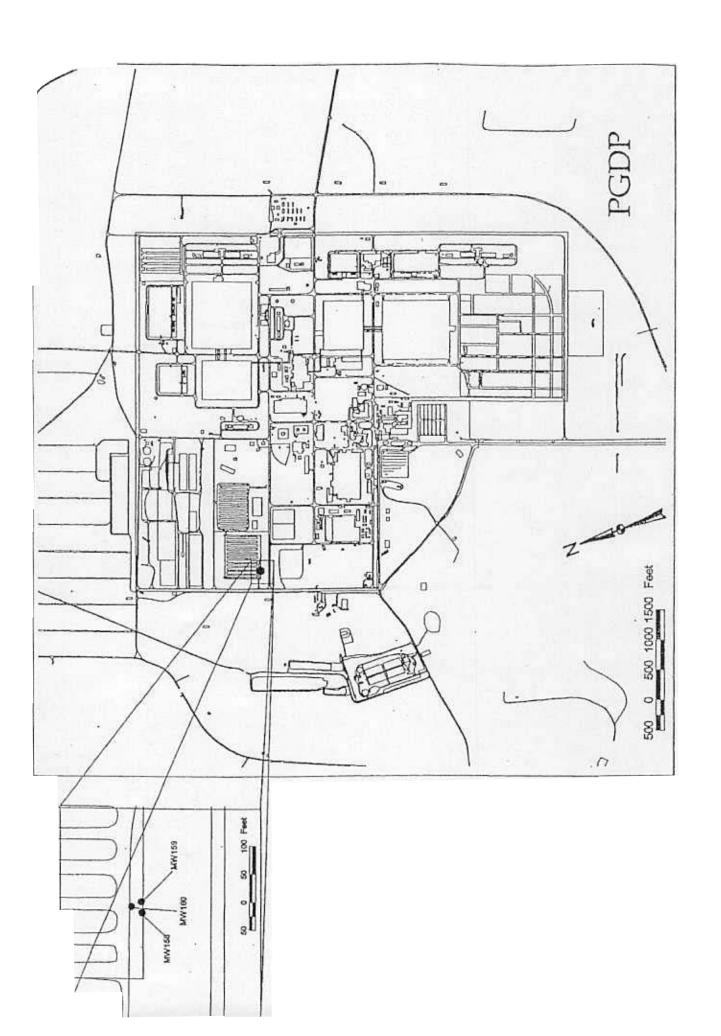
Please read at instructions prior to completing this form. Do not write in shaded area. The original copy of this form must be submitted within 30 days of well completion to the Nertunals Natural Resources and Femousty Natural Resources.

(1) Attach Monitoring Well

DEP-8043

Groundwater Branch, 14 Reiby Road, Frankfort, KY 406 (TYPE OR PRINT CL.	01. Telephone (502) 564-3410.	Identification Number Label Here (if applicable)
(2) GENERAL INFORMATION:	Ennely	
Facility Name Paducall Creams Affician Plant Fac Name Against D (4) Veterans AUS. City	ary signed Endrall Coses States Pa Brown W Konting 20 6053	Date Received: (3) IDENTIFICATION NUMBER
- Vatute 4-3		
(4) WELL LOCATION: MA	County La McCenckou N	Flade Longitude
Surface Elevation: APP Total Depth: Depth to Bedrock: Static Water Levet: Weitheast () Flush Mount (X) Locking Cap () No Cap (X) Stickup; inches above surface: 3 ITO WELL COMPLETION INFORMATION Feet Below Surface Borehole Casing From To Diameter Diameter Cas D 108 12 8 57ccl Well Screens: ID. (in.) 2 From 70 To 55 ID. (in.) From To Type Annutus Fill and Seet: Feet Below Surface From To Material D 110 37 Schiols Grant	(A) WELL USE: (check all that a (Plug () Water Quality () Water Level Monitoring () () Hemediation () Other: (1) UTHOLOGIC LO Feet Below Surface From To Stot Size — Stot Si	(i) E. Coal Field (i) W. Coal Field (i) Miss. Plateau (i) Jackson Purchase (ii) ATTACHMENTS: Required 1. Site plan or shatch map (iv) 2. Well construction diagram (iv) 3. Well location On topographic map, or (i) Ostioned by GPS unit (i) Ostioned (ii) Coalend (iii) Coalend (iii
HITANIC ENUIRONMENTAL INC. Company Mailing Address	e Certification Number or Rig Operator's 1 / 8203/000 City	State Zip Code Date
117 Industry Road Number of Attached	MAKISTA	Offic 45750 9 10 89 Month, Day, Year DEP-8043

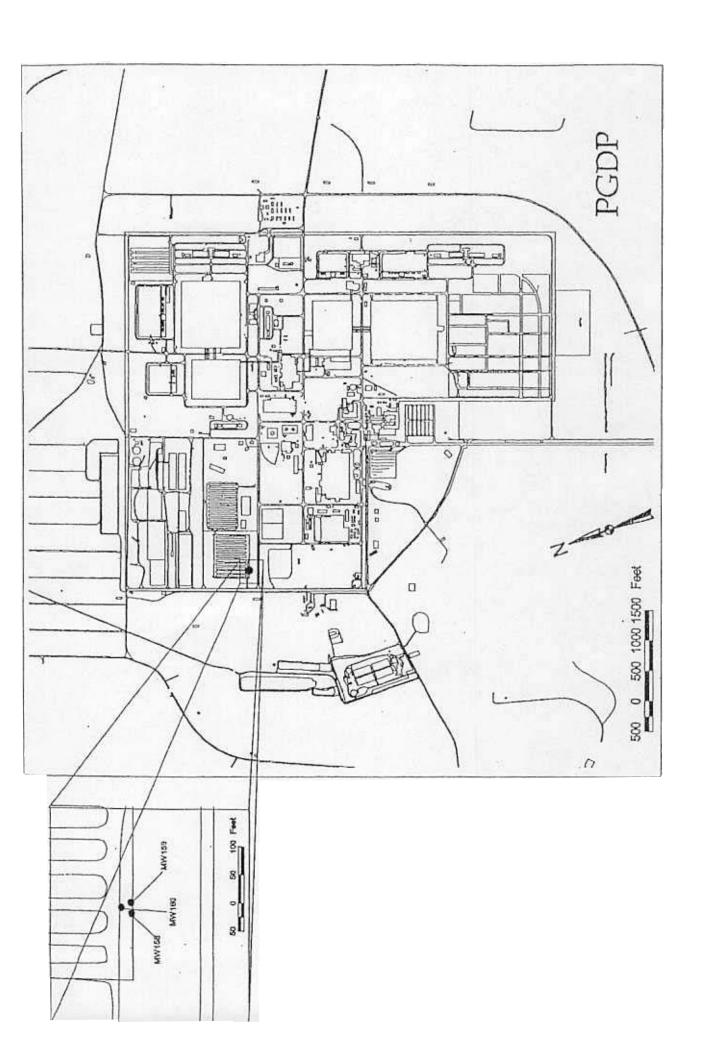




ocation of Monitoring Wells 158, 159, and 160

MW-159

KENTUCKY MONITORING	VELL RECORD	
Please reed all instructions prior to completing this	form. Do not write in shaded area.	
The original copy of this form must be submitted with Kentucky Natural Resources and Environmental Prote	1 33 days of well completion to the	
Groundwater Branch, 14 Relly Road, Franklon, KY 406	1. Telephone (502) 564-3410.	
(TYPE OR PRINT CLE	ARLY)	
(2) GENERAL INFORMATION:		
Facility Name Produce H GASSONS AFFERING PONT FOR	Q1 1/1 Dec: (Date Received: No. 200 200 200
Facility Name II-Chicago (MOSCOS (Mission) Fed		AN THE STATE OF TH
Matting Address 741 Veterans AW. Cay	TADUSTAN	2010年を整備ない方式を発します。
Cay Photena Son	Kentuke Do 8053	(3) IDENTIFICATION NUMBER
State Kentucky 20 49653 Own	er's Phone ()	
- CONTRACTOR CONTRACTO		atilude Longitude
		atitude Longitude
	Meleniken N	W NA
(5) GENERAL WELL CONSTRUCTION:	(6) FACILITY TYPE:	(8) PHYSIOGRAPHIC REGION:
Firish Date: 8-13-57) RCRA () Surface Minir () CERCLA () Site Assessm	19) Blue Grass () Ohio River Alluv Bent () E. Coal Field () W. Coal Field
Drilling Method:	TSCA () Solld Waste !	Landfill) Miss. Plateau () Jackson Purcha:
() Auger HS () Reverse Polary () Push/p	obe [
() Auger SS () Cable Tool () Excava () Air Hotary () Hand Auger (y) Sonic	(1) Other: GOVERNMENT	
() Mud Rolary () Other:	_	
Work Type: { } New Well { } Nested Well { } Rework { X	Plug	i
Surface Elevation: M/n- Total Depth:		
Depth to Bedrock: Statio Water Level:		
Wellhoad:	E	
() Flush Mount (/) Locking Cap () No Cap (/) Stickup; inches above surface: 3	ľ	
10) WELL COMPLETION INFORMATION		
Feet Below Surface Borehole Casing From To Diameter Diameter Casi	n Tone	
0 34' 19" 5" STeel	д Туре	
D DIE		
Well Screens:		
D. (n.) 8 From 43 To 68 Type 55		
[발대기 - 12] [10] - [12] - [12] - [12] - [12]	lot Size	
	lot Size	
Annulus Fill and Seat:		
From To Material		
0 70' 30% Salids Crout		
<u> </u>		
	100000000	
(12) COMMENTS		
(12) COMMENTS OUCUCRILLED SUFFICE CA	SING WITH A " SONIC CASH	ing Pulled Sulface Crising Then Occarded
WITH 3" Source CASING TO DO' RET.	result all of The well for	CENT THE 5 Scheon Tremin Charted
will 30% Solds As Charing withder	ωU.	
13) AFFIRMATION: The work described above was d	one under my supervision, and this repr	of is true and correct to the best of my knowledge.
Onling Company State	Certification Number or Rig Operator's	Number Startplurg of Responsible Certified Drille
Allieux Engenmental INC.	182021000	4-1Sull
Company Malling Address	City	State Zip Code Date
117 INDUTES ROAD	Meastle	01/10 45750 9 10 99 Nonth, Day, Year
ta LANGUARY XONG	MARKUM	Month, Day, Year



ocation of Monitoring Wells 158, 159, and 160

12:00- 160 KENTUCKY MONITORING WELL RECORD Please read all instructions prior to completing this form. Do not write in shaded area. The original copy of this form must be autimitted within 30 days of well completion to the (1) Attach Monitoring Well Kentucky Natural Resounces and Environmental Protection Cabinet, Division of Water Groundwater Branch, 14 Reitly Road, Frankfort, KY 40601, Telephone (502) 564-3410. Identification Number Label Here (if applicable) (TYPE OR PRINT CLEARLY) (2) GENERAL INFORMATION: None ATTAcked Date Received: Facility Name Posturati Granges Cottonia Plat FACERY MANNE BOOKERS EASTERS DEFECTION FROM in California Maring Assess 261 VeTremes, AUS. CHY TANKAH PADUCAL (3) IDENTIFICATION NUMBER SIND KENTUKY To 42253 2043053 State KenTucky Owner's Phone [USGS Quadrangle Name County Latitude Langitude (4) WELL LOCATION: NEW AVA MA McCencken w (5) GENERAL WELL CONSTRUCTION: (6) FACILITY TYPE: (8) PHYSIOGRAPHIC REGION: RCRA () Surface Mining CERCLA () Site Assessment TSCA () Solid Waste Landfill UST () Landfarm Start Date: ___) Blue Grass () Ohlo River Alluviur) E. Coal Field () W. Coal Field) Miss. Plateau () Jackson Purchase Finish Date:__ Drilling Method:) UST () Auger HS () Auger SS () Reverse Rotary [] Push/probe (9) ATTACHMENTS:) Cable Tool) Excavation (X) Other Secretary and () Air Rotary Hand Auger Oct Senie Required () Mud Rotary () Other: Site plan or sketch map Well construction diagram Well location (7) WELL USE: (check all that apply) 级 Work Type: () New Well () Nested Well () Rework (X) Plug Water Quality Ambient Mostoring () Not Used Water Level Monitoring () Destroyed Water Quality () Dry Hole () Not Used On topographic map, or Obtained by GPS unit Surface Elevation: Alfa Total Depth: Depth to Bedrock: ___ _Static Water Level: Welhead Optional: () Other . () Flush Mount () Locking Cap () No Cap 4. Laboratory analysis report () (X) Stickup; Inches above surface: 3.5" 5. Other: _ (10) WELL COMPLETION INFORMATION (11) LITHOLOGIC LOG Feet Below Surface Borehole Casing Feet Below Surface From To Diameter Diameter Casing Type Fram To Description 0 30" 8" 2" STANJONS STEEL Wall Screens: 10 (in.) 2 From 26 To 35 Type 55 Slot Size I.D. (in.) From. Annulus Fill and Seal: Feet Below Surface From To 30 & Still Gust 30 Overdeilled with 12" Souic Crains, Removed well then Transed Granted To Grand Level with 30% Solids Great Ms BASING WITH deman (13) AFFIRMATION: The work described above was done under my supervision, and this report is true and correct to the best of my knowledge. State Certification Number or Rig Operator's Number Drilling Company Signature of Besponsible Certified Driller Alliance Environmental INC 182021000

State

Oltio

MARIETTA

Date

9

Month, Day, Year

DEP-8043

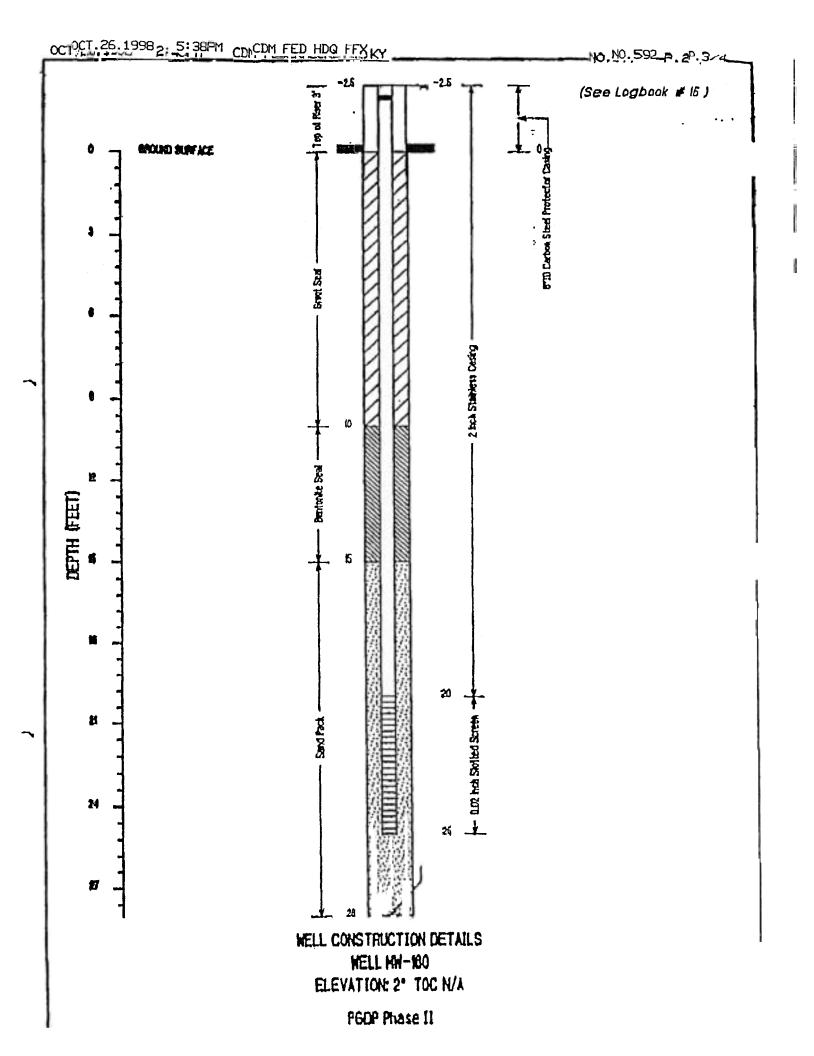
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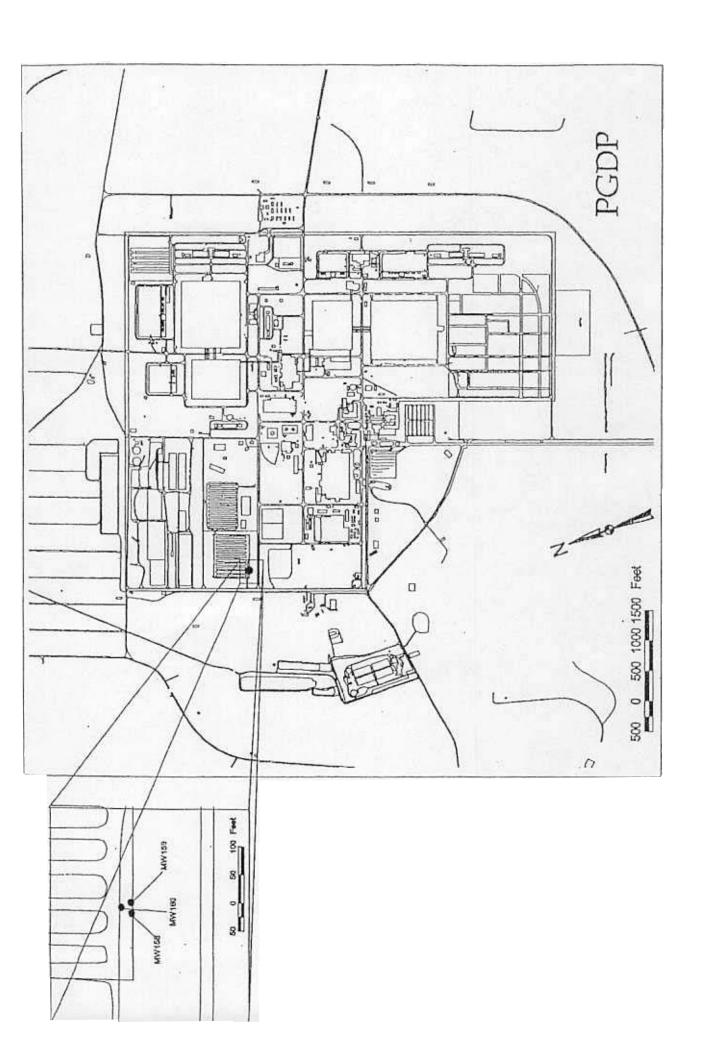
45750

Company Mailing Address

117 INCLUSTRY ROAD

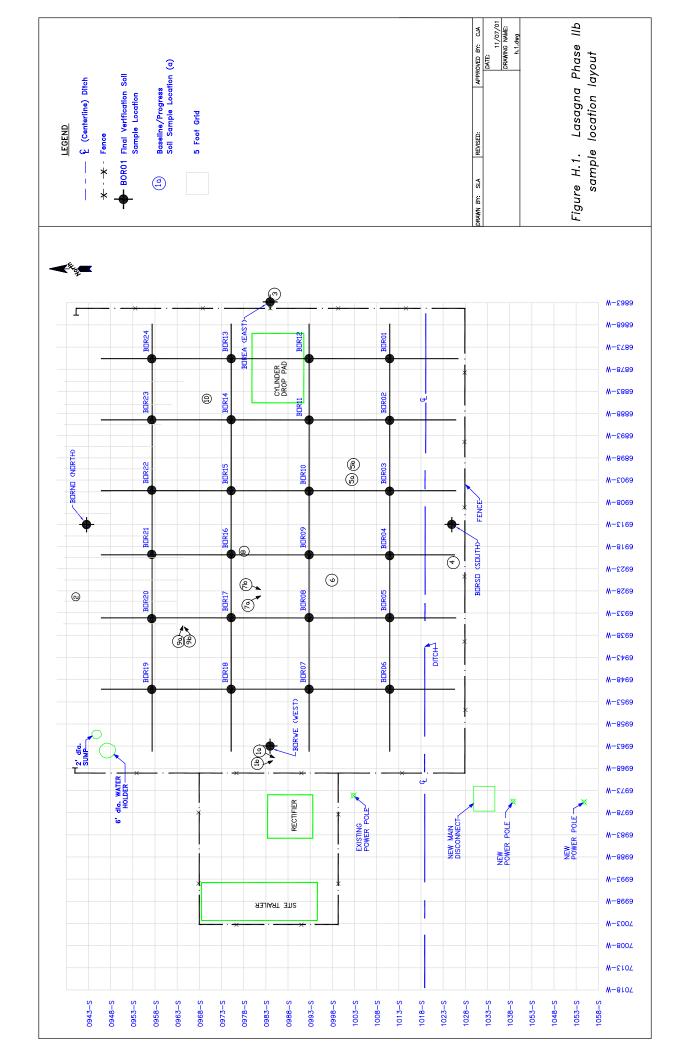
Humber of Attached

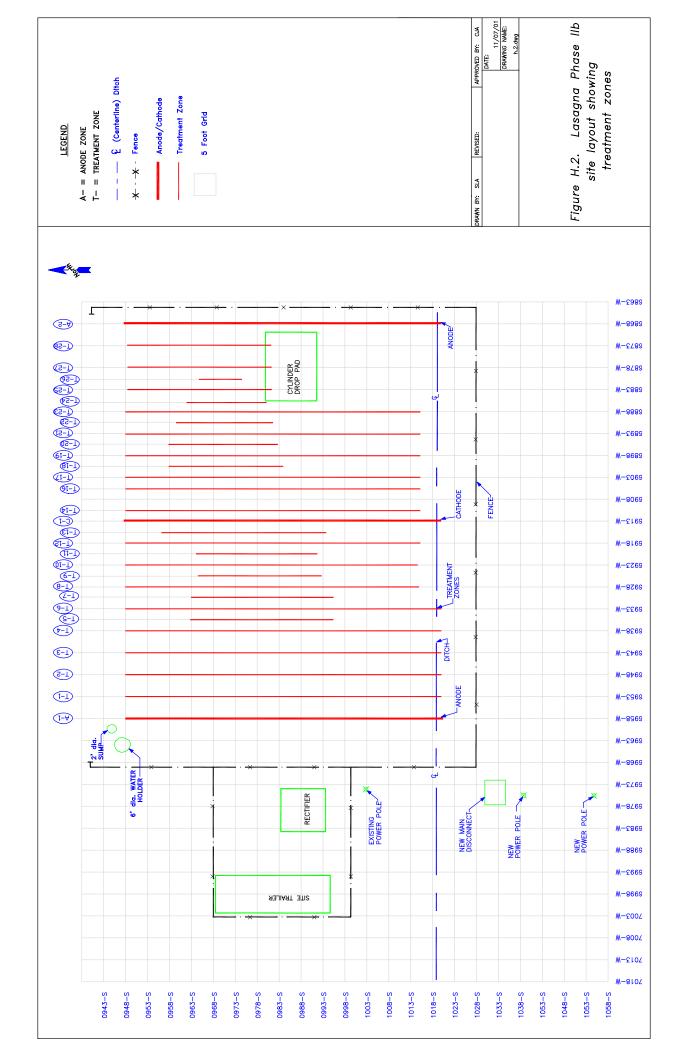


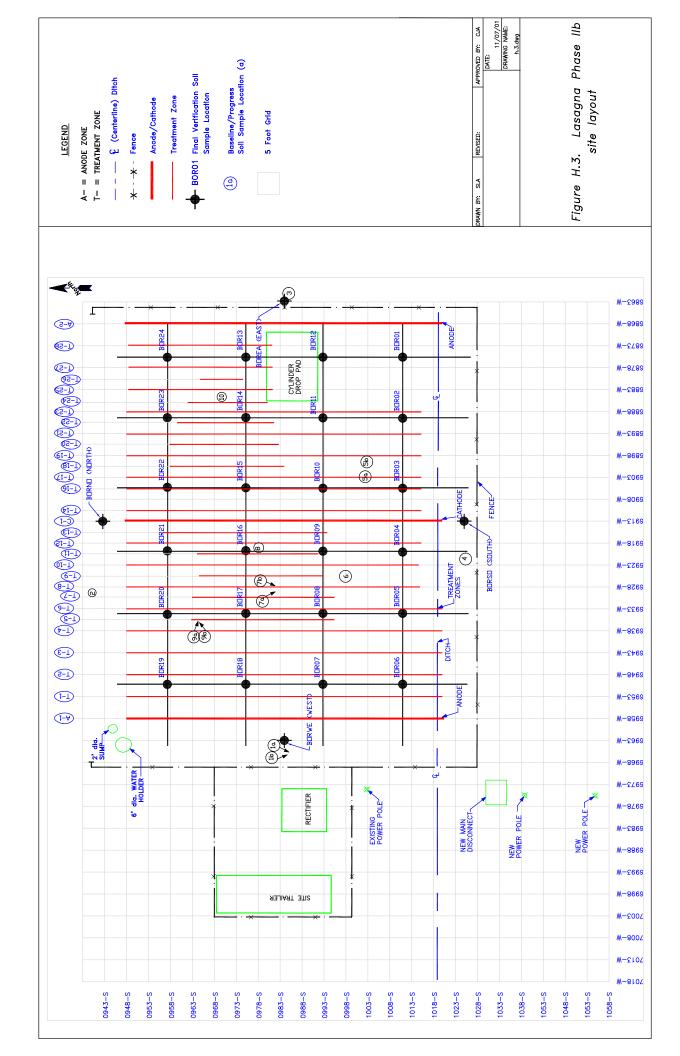


ocation of Monitoring Wells 158, 159, and 160

APPENDIX H SITE LAYOUT AND SAMPLE LOCATIONS







APPENDIX I OPERATIONAL CHARTS

